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Original Articles.

THE ENERGY CONTENT OF EXTRA FOODS.

(Second paper.)

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In an earlier paper¹ we called attention to the importance of knowing the caloric content of cooked foods, particularly those served or taken away from the table and at other than regular meal times. The medical profession especially should, we believe, have its attention directed to the great significance and the extent of the calories in these extra foods, which are usually entirely disregarded in calculations of food eaten or food reported as eaten by the patient.

This present report deals with a group of materials very frequently eaten as extras, as incidental light meals, as ingredients of lunches, at picnics, spreads, and on automobile tours. We present herewith material dealing with olives and olive products, sardines, nuts, potato chips, doughnuts, confectionery (such as caramels, nougats, chocolate almonds, peppermints, etc.), and, in view of their extensive consumption by children, we have determined and report here

the caloric content of a large number of candies popularly sold under the name of "penny goods," that is, sold in portions costing one cent each. We likewise include partial reports on cream cheeses, popcorn, and crackers, including pretzels, and finally, with a full recognition of the utter disregard commonly shown the open sugar bowl as a source of calories, we report the average helpings of granulated sugar as measured by 17 members of the Nutrition Laboratory staff, as well as weights and sizes of various lump sugars. Sufficient evidence was presented in the first paper to show that very considerable amounts of energy are obtained in commonly served portions of these extra foods, as much as 500 calories, for example, being secured in a college ice or "sundae". Economic conditions have changed so rapidly that the actual cost per hundred calories or the number of calories for ten cents is at present only of secondary value. We still report certain cost values, however, fully recognizing that they are in no sense strictly comparable with values reported in our earlier paper, but feeling that they are not without significance as indicating the ease with which even children may secure a considerable number of calories at the cost of one cent.

The chief sources of information with regard to the caloric content of foods, namely, the government bulletins, deal for the most part with

the composition of uncooked materials and it is exceedingly difficult to use figures from these sources intelligently for the computation of the caloric content of various cooked foods, particularly those of a more or less complex nature. All of our data for the various materials studied have been based upon direct calorimetric measurements* with the bomb calorimeter, the entire technique of which may be found in an earlier report from the Nutrition Laboratory.²

OLIVES AND OLIVE PRODUCTS.

Bottled olives are extensively used as extra foods. A modern innovation is ground olive pulp sold as "olive butter," which is commonly used in the preparation of sandwiches. The data with regard to olives and olive products are given in Table I. The cost at the time of purchasing, as here reported, can have relatively little comparative value. Olives are usually classified in the trade by size, and hence in this table, in addition to the weight per olive as purchased and the weight of edible portion per olive, i.e., the weight less weight of pit, we have given, as a further index of size, the greatest length in millimeters and the greatest diameter in millimeters. The olives are listed primarily from the standpoint of size, from which it can be seen that the largest olives are not far from 32 millimeters long and 23 millimeters in greatest diameter, weighing with the pit from 9 to 13 grams, the edible portion weighing from 7 to 10 grams. The calories range from 1.147 per gram to 1.553 per gram. Special attention is called to the much higher caloric values per gram of the so-

called ripe olives, which range more nearly about 2.4 calories per gram, due to the extra fat in the ripe olive. In general, from 10 to 15 calories are obtained in each of the large olives. Small stuffed olives, which are commonly used, furnish a little over 4 calories per olive, while the ripe olives furnish from 8 to 10 calories, depending upon the weight of the edible portion. An average-sized olive, then, gives not far from 8 to 10 calories, extra large olives give 14 to 15 calories, and small olives, including stuffed olives, 4 or 5 calories. Olives are not a particularly economical source of energy and must be looked upon chiefly as appetizers. Olive butter furnishes approximately 10 calories for each level teaspoonful.

SARDINES.

Perhaps no one extra food is more commonly used at picnics, in automobile lunches, and for incidental meals than are sardines. While the war has almost completely shut off the supply of foreign sardines of the higher grades, American sardines have been extensively distributed and used throughout the country. The data with regard to sardines are reported in Table II. Although the various brands could by no means be exhausted, a sufficient number are included here to give representative samples. It is clear that the average sardine can contains not far from 100 grams of material. In two instances, both American make, 140 to 150 grams were found. In most instances free oil was found in the can, and this was poured out, weighed, and the caloric value computed from a standard factor. With four of the American sardines the oil was completely absorbed by the fish. It is obvious from comparing prices, weights of contents, calories per gram, etc., that with sardines

*In the conduct of this research we have enjoyed the helpful assistance of Miss Marion L. Baker and Miss Mary D. Finn; to Miss Alice Johnson we are indebted for the determinations of nitrogen. It is a special pleasure to express our appreciation of the kind volunteer service of Mrs. S. C. Stickney, who assumed the responsibility for the verification of nearly all the computations.

TABLE I. OLIVES.

NAME	COST PER BOTTLE	NUMBER PER BOTTLE	AVG. SIZE—		WT. PER OLIVE, As Purchased	Edible Portion	CALORIES PER GRAM (EDIBLE PORTION)	CALORIES PER OUNCE (EDIBLE PORTION)
			Greatest Length	Greatest Diameter				
	cents		cm.	cm.	gms.	gms.		
Spanish Queen	50	29	3.3	2.5	12.90	10.40	1.477	15.4
La Sevillana Queen (Mammoth) ..	45	28	3.2	2.3	11.39	8.93	1.553	13.9
Crown Queen	28	21	3.1	2.2	9.06	7.14	1.147	8.2
Spanish Olives	35	32	2.6	2.0	7.97	6.06	1.359	8.3
La Sevillana Queen	12	12	2.6	1.9	7.67	5.94	1.424	8.5
Stuffed Olivettes	25	33	1.8	1.6	2.98	2.98	1.896	5.6
Stuffed Olives	15	34	1.7	1.5	2.97	2.97	1.400	4.2
Ripe Olives (Sylmar Brand)	35	40	2.4	1.6	5.20	4.25	2.417	10.3
Manzanilla	13	20	2.1	1.6	4.76	3.66	2.452	9.0
Ehmann Ripe	45	102	2.0	1.7	4.10	3.21	2.398	7.7
Olive Butter	28	—	—	—	—	—	1.358	9.5*

*Calories in 1 level teaspoonful. Total weight of contents in jar costing 28 cents is 112 grams.

TABLE II. SARDINES.

NAME	COST PER CAN	NUMBER PER CAN	WEIGHT OF CONTENTS	TOTAL CALORIES PER CAN	TOTAL PROTEIN PER CAN
<i>American</i>	cents		gms.		gms.
Arab Brand, Eastport, Me. . .	10	12	100.6	262	21
Avalon Californian Brand . .	21	11	99.9	373	22
Fisher Queen, So. Portland, Me. . .	18	8	102.5	336	22
Tango Spiced, West Pembroke, Me. . .	20	8	147.8	397	26
Arrow Brand, So. Portland, Me. . .	15	10	83.1	311	15
Neptune, Eastport, Me. . .	12	12	109.2	286	21
Puritan American . . .	12	7	106.5	221	23
Rubidoux, Los Angeles, Cal. .	18	14	115.9	397	23
Fried Brand, Rockland, Me. .	15	6	90.3	261	17
Fried, Sun set Packing Co., West Pembroke, Me. . .	18	14	140.8	533	24
Pandora Brand, No. Lubec, Me. . .	15	26	94.1	379	15
<i>Foreign</i>					
Sea Lion, Norwegian Smoked, Stavanger, Norway . . .	30	30	106.6	514	24
Philippe & Canaud, Nantes, France . . .	40	—	103.6	485	21

as with practically all extra foods the price is by no means representative of the caloric content. Here, as elsewhere, one pays for delicacy of flavor and neatness of appearance of container and contents. What is of special interest is the fact that a can of imported sardines will yield not far from 500 calories, and that a can of American sardines will yield from 221 to 533 calories, the average sized can yielding not far from 300 calories. In these samples where the oil was separated from the fish, it was clear that a considerable portion of the caloric value was due to the oil present. The nitrogen content of sardines is, in the present days of nitrogen restriction and protein conservation, worthy of notice and certainly should be considered in computing the daily protein intake. As may be seen from the table the amount of protein in a can of sardines varies from 15 grams to 26 grams.

NUTS.

The extensive use of nuts, particularly peanuts, as extra food and the frequent use on the dining table of small portions of nuts as appetizers, make a caloric study of these products of special interest. The values with regard to nuts are recorded in Table III. The high fat content of nuts accounts for the high caloric value, which runs in all cases not far from 7 calories per gram. In the case of all nuts other than peanuts the weight of each nut is between 1 and 2 grams, furnishing from 9 to 15 cal-

TABLE III. NUTS.

NAME	WEIGHT PER NUT	CALORIES PER GRAM	CALORIES PER NUT	PROTEIN PER 10 NUTS
	gms.			gms.
Salted Almonds . .	1.39	7.537	10.5	3.6
Salted Filberts . .	1.34	7.803	10.7	—
Salted Pecans . .	1.16	7.996	8.9	1.0
Unsalted Walnuts .	1.90	7.737	14.7	2.8
Peanuts	0.89*	7.016	6.2	2.5

* Represents the weight of one kernel.

ories for each piece. Here again the protein content should not be neglected, although, save in the case of peanuts, but relatively small amounts of these nuts are commonly consumed. Still, the fact that one can obtain nearly 150 calories in 10 half-walnuts and 60 calories in 10 peanut kernels should not be overlooked in any computation of caloric intake.

POTATO CHIPS.

In the eastern states, at least, a common form of serving potatoes is as so-called "potato chips," which are very thinly sliced potatoes, fried in fat, usually liberally salted, and sold in small pasteboard boxes. The two packages here analyzed and reported in Table IV weighed 88

TABLE IV. POTATO CHIPS.

COST PER BOX	WEIGHT PER BOX	CALORIES PER GRAM	TOTAL CALORIES PER BOX
cents	gms.		
18	88.3	6.161	544
15	126.8	5.928	714

and 127 grams respectively. Owing to the fat content the caloric value was high, on the average 5.9 calories per gram. The total calories per box were in these two instances 544 and 714 calories, respectively.

To obtain some estimate as to the probable average helping of potato chips, ten members of the laboratory staff independently weighed out what in their judgment was an average portion. This ranged from 10 to 28 grams, averaging 23 grams. Since the caloric value is not far from 5.9 calories per gram, there would be somewhat over 130 calories in one helping.

DOUGHNUTS.

A characteristic American bakery product is the doughnut, which is prepared with sweetened quick-rising dough, fried in deep fat, thereby yielding a product which contains a considerable quantity of fat. The wide use of the doughnut, particularly in connection with the war, and its especial association with the extensive operations of the Salvation Army, have brought it into al-

most international importance. It has long been used in America extensively as part of a quick lunch and as an extra food. The data for six samples, which were purchased at different places, are included in Table V. At the time

TABLE V. DOUGHNUTS.

SAMPLE	WEIGHT PER DOUGHNUT GRAMS	CALORIES PER GRAM	TOTAL CALORIES PER DOUGHNUT
a	31.6	4.769	151
b	38.6	4.603	178
c	41.1	4.426	182
d	41.7	4.396	182
e	45.0	5.075	228
f	57.7	4.962	286

these doughnuts were purchased the cost price was practically the same for all, that is, 15 cents per half dozen. The weights vary from 32 to 58 grams. The caloric value per gram varies in all probability with the fat content, ranging from 4.4 to 5.1 calories. What is of special significance is, however, the fact that per doughnut the calories range from 151 to 256, averaging not far from 200 calories per doughnut. Even in these times of high prices it is quite obvious that the doughnut furnishes a large number of calories at a relatively low price.

CRACKERS AND PRETZELS.

Supplementing our rather extended determinations of the caloric value of crackers published in our first paper, we report in Table VI four

TABLE VI. CRACKERS AND PRETZELS.

NAME	WEIGHT PER CRACKER GRAMS	CALORIES PER GRAM	TOTAL CALORIES PER CRACKER
Oyster Crackers	0.82	4.281	3.5
Educator Toasters	3.05	4.278	13.1
Educator Wafers	2.60	4.172	11.2
Pretzels	4.87	3.885	18.9

more, including pretzels. The calories per gram are not far from the caloric value of starch, i.e., 4.2 calories. Even the small, apparently insignificant oyster cracker furnishes 3.5 calories for each piece, and the pretzel 19 calories.*

CONFECTIONERY.

While in our early report we presented extensive data with regard to cake chocolate of various kinds, confectionery such as caramels, bonbons, nougates, etc., was not reported. With the special idea of emphasizing the caloric value of individual pieces of candy we have made a study of various types of caramels, chocolate-covered candies such as nougates, almonds,

* In the report for macaroons in our first paper (Boston Medical and Surgical Journal, 1918, Vol. clix, Table II, p. 159) the calories were erroneously reported, inasmuch as they were determined upon the partially dried material. The true value should be 4.442 calories per gram, or 37.9 calories for an average macaroon weighing 8.5 grams.

peppermints, etc., two specimens of gum drops, one of marshmallow, one of cough drops, and three of mints, all of which are reported in Table VII herewith. It is obvious that manu-

TABLE VII. CONFECTIONERY.

NAME	COST PER POUND	WT. PER PIECE	CALORIES PER GRAM	TOTAL CALORIES PER PIECE
<i>Caramels</i>				
Vanilla	50	11.53	4.171	48.1
"	100	11.10	4.471	48.6
"	50	11.44	4.216	48.2
Chocolate	50	10.88	4.437	48.2
"	100	10.93	4.905	54.4
"	50	10.77	4.154	44.7
Chocolate Layer	50	9.38	4.305	40.4
"	60	10.88	3.982	42.6
Chocolate Nut	50	11.28	4.455	50.3
"	50	10.32	4.727	48.8
<i>Chocolate-coated</i>				
Nougatines	—	18.84	4.394	82.8
"	70	10.30	4.924	50.7
Chocolate Almonds	85	3.08	6.406	23.5
"	85	4.55	6.435	29.3
"	90	3.06	5.880	18.0
"	125	2.01	6.434	12.9
Chocolate Peppermints	85	12.01	4.506	54.1
"	129	7.48	4.441	33.2
"	129	8.65	4.613	39.9
"	65	10.00	4.403	44.0
"	100	11.00	4.333	50.3
<i>Miscellaneous</i>				
Marshmallows	60	4.10	3.266	13.4
Cream Mints	30	8.85	3.567	31.6
Chocolate Cream Mints	30	8.81	3.949	33.9
Canada Peppermints	40	3.34	3.925	13.1
U-All-No Mints	—	1.38	3.814	5.3
Gum Drops	45	9.43	3.459	32.6
"	40	11.10	3.270	36.3
Cough Drops	—	2.91	3.908	11.4

* Cost per box, 12 in a box; † Cost per box, 11 in a box; ‡ 15 cents per package; § 5 cents per package, 16 in a package.

facturers of caramels have reasonably closely standardized their goods so that each individual caramel weighs not far from 9 to 11 grams, averaging very closely 11 grams. The caloric value is somewhat over four calories per gram, i.e., above the heat of combustion of pure carbohydrates, and reflects to a certain extent the appreciable proportion of fat which is found in many caramels. Of special significance is the fact that with caramels from 40 to 54 calories per piece may be obtained, the average value being somewhat over 45 calories per caramel. Indeed, one or two samples were so difficult of aliquoting that they could not be satisfactorily burned owing to the fat, and it is quite likely that the average energy value of high grade caramels would be represented by a round figure of 50 calories per piece.

The frequent use of chocolate as coating for

candies makes this particular form of confection very popular. Nougatines, chocolate almonds, and chocolate peppermints are perhaps those most commonly eaten. These different individual candies vary considerably in size, as the two lots of nougatines analyzed weighed on the average 10.3 and 18.8 grams per piece, respectively. Owing to the fat in the chocolate the caloric value of these chocolate-coated candies for the most part runs above four calories per gram, and depending upon the weight of the individual piece, we have calories per piece of candy ranging from 12.9 with the small chocolate almond to 82 with the large nougatine. From a comparison of prices it would appear that here again flavor and appearance are the dominating factors. It is important, however, to note that even with such a small bit of candy, as the chocolate almond, 13 calories may be obtained. With chocolate peppermints the individual pieces range from 7.5 to 12 grams, with a reasonably uniform caloric value of about 4.5 calories per gram, and from 33 to 54 calories per peppermint. It will be astonishing to many people to think that from 40 to 50 calories can be obtained from one chocolate peppermint.

A small group of miscellaneous candies, not easily classified, includes gum drops, cough drops, U-All-No mints, and marshmallows. Since but one of these miscellaneous candies contains chocolate, the caloric value per gram is for the most part four calories or under. The gum drops weigh not far from 10 grams each and furnish about 35 calories per piece. A popular after-dinner confection is the so-called "U-All-No mints," which weigh 1.4 grams per piece and furnish 5.3 calories. A widely advertised cough drop, which has been commonly used in large part as a confection, furnishes 11.4 calories for each piece. An individual marshmallow furnishes 13.4 calories, cream mints about 32 or 33 calories per piece, and the Canada peppermint 13 calories.

PENNY CANDIES.

A large industry has been built up around the sale to children of portions of candy for one cent, under the technical name of "penny goods," in which candies ranging in number from one to eight or ten, depending upon the size, are sold for one cent. These candies go under various trade names, which are given in Table VIII, but which in all probability have

TABLE VIII. PENNY CANDIES.

NAME	No. FOR 1 CENT	WT. PER PIECE	CALORIES PER GRAM	CALORIES FOR 1 CENT
<i>Sugar</i>				
Candy Flgs	1	20.1	3.386	68.1
American Flgs	1	19.4	3.423	66.4
Licorice Bars	1	12.9	3.353	43.3
Monarch (Licorice) Sticks	2	6.1	3.393	41.4
Stick Candy	1	15.9	3.717	59.1
Peppermint Sticks	1	11.5	3.715	42.5
Peppermints	2	4.7	3.648	34.1
Molasses Peppermints	3	4.5	3.761	50.9
Molasses Peppermint Ovals ..	5	4.6	3.827	88.0
Molasses Kisses	1	8.8	3.601	31.7
Molasses Candy (old-fashioned)	1	22.0	3.549	78.1
Suckers	1	19.1	3.983	76.1
Suckers	1	19.6	3.782	73.9
Lollypops	3	4.3	3.894	50.2
Lime Ovals	2	4.8	3.758	35.9
Skidoo Balls (Rovers?)	3	4.2	3.822	48.2
Jelly Beans	8	1.9	3.624	55.1
Primrose Mixture	6	1.7	3.855	39.3
Hoot Mon (caramels)	2	8.6	3.758	64.6
Whipped Cream Caramels	2	6.4	3.754	48.1
Assorted Caramels	3	4.1	3.765	46.3
Banana Caramels	2	12.5	3.743	93.6
Maple Cigar	1	18.3	3.653	66.9
Gibs (sugar candy, various flavors)	1	19.1	3.687	70.4
Marshmallows	1	6.7	3.716	24.9
Trimmers	10	1.2	3.973	49.3
Butter Scotch	1	14.6	3.630	53.0
Butter Caramels	2	10.5	3.697	77.6
Butter Daisies	6	1.5	3.740	33.7
Maple Crescent	1	11.5	4.175	48.0
Lozenges (Neco)	6	2.4	3.951	57.4
Nectar Cream Bar	1	19.1	3.932	75.1
Nest Sen	10	0.9	3.998	34.4
<i>Chocolate</i>				
Chocolate Peppermint	1	16.0	4.359	69.8
"	1	13.1	4.217	55.2
"	1	11.8	4.216	49.8
Old-fashioned Chocolate Cream	1	11.8	4.055	47.9
Sour Orange Chocolate Cream	1	12.9	4.040	52.1
Drake's Vanilla Cream	1	15.1	4.210	63.6
Chocolate and Maple Bar	1	13.0	4.048	52.6
Borden's Chocolate Squares ..	1	4.1	5.840	23.9
Chocolate Caramel	1	11.3	4.735	53.5
Bitter Sweet (vanilla) Choc-				
olates	1	10.9	4.323	47.1
Fudge	1	18.8	3.599	67.7
Chocolate Marshmallow	1	10.5	4.122	43.3
Pluto (Bolster, chocolate covered molasses)	1	10.5	4.284	45.0
Waneta Chocolate Block	1	10.6	5.868	62.2
<i>Nut</i>				
Peanut Bar	1	17.5	5.893	102.1
Peanut Bar (Squirrel Brand)	1	16.9	5.883	99.4
Chocolate Peanut Bar	1	12.6	4.779	60.0
Peanut Caramels	2	8.1	3.835	62.1
Peanut Stick (Peanut butter filling)	1	23.4	3.640	85.0
Peach Blossoms (peanut filling)	2	3.9	4.666	36.4
Nougatine	1	11.4	4.580	52.2
"	1	10.4	4.426	45.8
Cocoanut Bar	1	15.7	4.099	64.4
Ko Ko	2	10.7	4.048	86.6
Cocoanut Almonds	6	2.2	3.972	52.4
Sugar Almonds	1	9.4	4.330	40.7
Molasses Cocoanut	1	14.6	4.796	69.2
Snow Bar (cocoanut and sugar)	1	19.7	3.619	71.3
Nut Caramel Bar	1	16.1	4.353	70.6
Nut Taffy	1	23.5	4.007	105.3
Mary Janes (peanut molasses sticks)	1	12.8	4.585	58.7

more or less of a local significance. In classifying these materials a rough attempt has been made to keep the chocolate candies by themselves, owing to the fact that they should have a somewhat higher heat of combustion per gram due to the fat. Other than this, little logical classification may be made. The fantastic names selected by the manufacturers mean little except to the large army of small purchasers, and here again, in all probability, flavor plays some rôle in the selection, although it is not improbable that size and weight may not be without appeal. A careful analysis of this tabular presentation is hardly feasible, but it is important to note that the number of calories obtained for one cent is frequently very large. Thus in two instances over 100 calories may be obtained for one cent. By inspection one can see that not far from 50 to 60 calories are commonly secured in these penny goods for one cent. At the present retail price of refined sugar, approximately 10 cents per pound, there would be 45 grams of sugar for one cent, or not far from 180 calories. These candies undoubtedly contain some starch and occasionally the less expensive but equally nutritious glucose. On the whole, considering variety, flavor, and attractiveness, the penny candy cannot be said to be a seriously uneconomical source of energy for the small child.

POPCORN AND CHEESES.

Pulverized popcorn, more or less colored, and compressed with molasses or some other binding material into cakes, finds common use. One such sample was analyzed. Likewise two soft cheeses, one Philadelphia cream and one Neufchâtel, were analyzed. The data obtained are as follows:

Popcorn Candy (4 flavors): cost, 10 cents; 64.5 gms.; 4,030 cal. per gm.; 260 total cal.

Philadelphia Cream Cheese: cost, 15 cents; 77.1 gms.; 3,654 cal. per gm.; 282 cal. per cheese; 10 gms. protein per cheese.

Neufchâtel Cheese: cost, 8 cents; 68.5 gms.; 2,056 cal. per gm.; 141 cal. per cheese; 15 gms. protein per cheese.

In the cheeses the relatively large difference in the calories per gram of fresh material may be ascribed without doubt to the fat content, the cream cheese containing the larger proportion of fat.

THE OPEN SUGAR BOWL.

The tremendous increase in the consumption of refined sugar by American households has been the subject of much discussion. Economists

view refined sugar as a comparatively new and important source of caloric intake. Physicians are not undisturbed by the possibility of excessive sugar consumption resulting in an increase in the incidence of diabetes. It is a fact, however, to be reckoned with by all that the consumption of refined sugar is on a great increase. Although this has long been known, it is surprising that in the computation of various dietaries the sugar consumption, other than that used in the regular process of cooking, is only too frequently entirely disregarded. In fact, one of the most important nutrition studies ever carried out in America was reported with no reference whatsoever to sugar in the coffee, where subsequent inquiry showed that not inconsiderable amounts had been thus consumed. It is of relatively little value to compute the caloric intake of a meal, even if the calories for each ingredient are carefully known, if one disregards completely the calories used as sugar in coffee, tea, or chocolate, or on cereals, berries, fruit, and pie; and while we welcome all efforts to educate the American public to the significance of caloric intake and consider that the representation in menus of the caloric value of the various ingredients is of the highest import, until the caloric value of a teaspoonful of sugar is fully recognized, any computations must be liable to great error. What is true of sugar is unfortunately likewise true with regard to butter, and not infrequently bread. The ordinary pat of butter in the restaurant is cut so as to represent from 40 to 50 pats per pound, or not far from 8 to 11 grams per pat, so that one pat of itself may represent as high as 70 to 90 calories. It is, however, chiefly with the free use of sugar that our interest at present lies, since sugar plays such an important rôle in the manufacture of the various extra foods, candies, etc.

It is a comment upon the seriousness of purpose of intelligent teachers of domestic science, particularly cookery, to note the efforts they have made to specify the size of the various measurements used in domestic cookery. For example, a teaspoonful may be either level, rounding, or heaping, and these three adjectives are commonly used. To obtain some approximate idea of the average weight of a serving of sugar from the teaspoon and variations in size of teaspoons, 17 members of the Nutrition Laboratory staff kindly volunteered to bring from their respective homes a typical teaspoon and to

measure out what in his or her judgment was an average "spoonful of sugar." For this purpose the volunteers used (a) their own personal spoons, (b) a so-called standardized "kitchen teaspoon" used for cooking and furnished by the Laboratory, (c) a common so-called "sugar spoon," and (d) a silver teaspoon of presumably usual size. Each volunteer measured out three spoonfuls, which were weighed and then an average value per spoonful obtained. The individual variations in these measurements are clearly reflected in the values given in Table IX. It

TABLE IX. SUGAR MEASURED BY SPOONFULS BY 17 INDIVIDUALS.

SPOON	SUGAR PER 3 SPOONFULS		SUGAR PER SPOONFUL	CALORIES PER SPOONFUL
	(Range)	(Average)		
Volunteers' spoons.	40.6-19.3	25.9	8.6	34
Kitchen teaspoon ..	34.6-20.9	26.4	8.8	35
Sugar spoon	49.6-18.3	31.2	10.4	41
Silver teaspoon	30.7-15.7	22.1	7.4	29

would have been interesting to have attempted a correlation between the weight of sugar and the individual idiosyncrasies of the volunteer for or against sugar. That lies outside of our province. What is of greatest importance, however, is the fact that the average teaspoonful of sugar may weigh seven to nine grams and furnish 29 to 35 calories, and a hearty eater, who supplies two or three teaspoonfuls of sugar to his cup of coffee or an equivalent amount on his fruit or cereal, may add to his total caloric quota for the day 100 calories in each such helping. It is clear from an analysis of this table that there must no longer be an utter disregard of the open sugar bowl as a source of caloric intake.

Since much use is made of lump sugar in various forms, three kinds have been measured and weighed. These records, together with the calories per piece, are given in Table X, from

TABLE X. LUMP SUGAR.

NAME	SIZE mm.	WEIGHT PER LUMP gms.	CALORIES PER LUMP
Domino (1/2 size) ..	25x12 1/2 x 8	4.00	18
Jack Frost Tablet...	27x18x10	5.94	24
Cut	22x19x16	7.22	29

which it appears that each lump of sugar may represent, according to size, from 18 to 29 calories.

EXTRA CALORIES IN THE DAILY RATION.

While at first sight it would appear to be utterly immaterial in a total 24-hour caloric in-

take of from 2000 to 3000 calories whether or no one ate one caramel or whether or no 50 to 60 calories were taken in the form of this or that extra food, it is clear that even one doughnut is not to be neglected in such a computation, that the contents of a can of sardines are not without significance, and it should be thoroughly borne in mind that even one individual caramel plays a distinctly important rôle in the daily energy quota. When one realizes that a single caramel, a nougatine, or a penny's worth of candy may furnish sufficient calories to supply the extra heat needed for walking a mile or more, their energy content appears to be more worthy of consideration. To take a "constitutional" of two miles is a religious factor in the life of many individuals. That the extra energy required for this exercise may be derived from one-half of a large doughnut will certainly be news to many. The ingestion of three medium sized olives appears to be insignificant, and yet to increase the caloric output of the body by an equivalent amount of heat it would be necessary for the average man to walk half a mile. For a man of average weight to walk from the bottom to the top of the Washington Monument would require an extra heat production of 80 calories. The energy expended in this seemingly considerable bit of exercise may be completely replaced by the consumption of less than one half a doughnut, or six unsalted walnuts, or five large olives, or four pretzels. In the light of these comparisons it is illogical to disregard the energy content of these extra foods.

Finally, the caloric needs of the growing boy and girl, as reflected in their seemingly insatiable appetites—a common household experience—should not be underestimated. A recent analysis of the weights of children implied that every effort should be made to have children somewhat over- rather than underweight.² The common raids upon the kitchen pantry of the small child, if not of sufficient frequency to upset digestion, are not physiologically unsound. The active healthy child has usually an extraordinarily good digestion and needs large amounts of food.

REFERENCES.

- ¹ Benedict and Benedict: BOSTON MEDICAL AND SURGICAL JOURNAL, 1919, Vol. cxxxix, p. 153.
- ² Benedict and Higgins: JOUR. AM. CHEM. SOC., 1910, Vol. xxxii, p. 461.
- ³ Benedict: BOSTON MEDICAL AND SURGICAL JOURNAL, 1919, Vol. cxxxix, p. 138.

DIABETES MELLITUS.

BY STEPHEN H. BLODGETT, M.D., BOSTON.

I AM using the title diabetes mellitus in order that the article may be indexed under the commonly accepted heading; but I have contended for several years that there are usually included under this single name several functional and organic conditions which cause sugar (glucose) to appear in the urine.

I shall try in this article to consider the subject of sugar in the urine entirely from the practical standpoint of the physician to whom a case is presented for treatment.

First and foremost, given a patient in whose urine there is sugar, we must, in order that we may intelligently decide as to the proper diet, treatment, and prognosis of the case, first decide as to the cause or source of the improper metabolism which allows the sugar to appear in the urine. As an invaluable aid in accomplishing this I have used the classification which I first published in 1911.

Broadly, I would classify the various forms of so-called diabetes as due either to a functional disturbance of the liver or to an organic disturbance in the pancreas; the former for the sake of brevity I will speak of as the hepatic form, and the latter the pancreatic form.

We will first consider the various types found under the hepatic form.

TYPE A.

This type is the most common, usually occurring in persons between thirty and sixty years of age. The patients are usually stout, very fond of food, and disposed to be what we often call "high livers," and to lead a more or less sedentary life. While they are taking an ordinary diet, there may be thirst, depending in degree on the amount of sugar present in the urine; the urine is apt to be increased in amount, though rarely running over 4,000 c.c. in twenty-four hours, with a specific gravity running from 1,028 to 1,040, and the sugar varying from 50 to 200 grams in twenty-four hours. There may be a very slight trace of albumen in the urine. Frequently you will find a very considerable number of large sized uric-acid crystals in the sediment, often some calcic oxalate crystals, and a few hyaline casts may also be present. The color of the urine will be normal; and it will usually be very strongly acid.

Diacetic acid never shows in uncomplicated cases of this type, and it is only when they are complicated with the pathological conditions found in the pancreatic type that the diacetic acid will appear. Acetone rarely shows, and it so, only in the slightest trace. This particular type is more likely to occur in men than in women and the presence of the sugar in the urine is often discovered by accident, as during an examination for life insurance, etc.

It seems as though the patient's digestive apparatus, having been overloaded with carbohydrates for years, had stored up part of the excess as fat until the ability properly to take care of the excess of carbohydrates became impaired and sugar appeared in the urine.

In this type careful inquiry into the previous history will convince us that some of the symptoms have been present for several years, but not of sufficient intensity to cause any disturbance to the patient.

TYPE B.

This type usually occurs in persons from fifty to seventy years of age, who are of ordinary build and have not indulged to an excessive extent in carbohydrates. There is frequently the added complication of gangrene of the toes, itching of the labia, boils or carbuncles, and in many of these cases a severe neuritis. The urine is ordinarily more normal in amount, rarely exceeding 2500 c.c. in twenty-four hours. There is no uric acid in the sediment and although the amount of sugar is less than in a case of the previously mentioned type, still it is harder to get the patient sugar free than in cases of Type A.

The treatment of cases of Type A and Type B is broadly the same. Later, under the subject of diet, I will go into the matter more fully. One difference I have noticed, however, is that cases of Type B will do better if in their permanent diet you will allow in each case all the uncooked fruit and raw milk that the patient can safely stand.

When you place these cases on the preliminary diet you will notice that the sugar disappears from the urine very rapidly and steadily in cases of Type A, but not quite so rapidly in cases of Type B, and in this latter type you may often be surprised to have the last 15 to 20 gms. of sugar remain in the urine for several days before entirely disappearing.

Prognosis.—Type A. Good if the patient can

and will remain on the proper diet. And let me say right here that a proper diet in Type A and Type B is one that will provide sufficient nourishment so that the patient can perform his allotted tasks properly. One that will be at least passably palatable and will sustain his body weight at the proper point, totally irrespective of the number of calories taken. In cases of Type A it is usually necessary to decide as to what should be the person's proper weight and then, by means of diet and exercise, get him gradually to that weight and keep him there.

Prognosis—Type B. Very fair, unless the complications are severe and the patient's condition has become undermined from other causes.

TYPE C.

This is often called "temporary glycosuria." The previous history of the case would never lead us to suspect the presence of sugar in the urine, there has been no marked thirst, no increase in the 24-hour amount of urine; the urine may show sugar present for several days and then absent for several days, depending somewhat on the amount of carbohydrates ingested. By care we may elicit a history somewhat as follows:

Patient has for some considerable time been under a constant mental strain and recently has been eating more carbohydrates in the form of candy or maple sugar than usual, or perhaps the patient is a person very much overweight. In these cases we may feel sure that we have by accident discovered a case that if it had progressed for a few years would have become a typical case of Type A.

Here the carbohydrate tolerance is very good and the prognosis is good if the patient is willing to remain on a slightly restricted diet and we can eliminate the cause of the worry.

TYPE D.

Under the hepatic form should be mentioned the types in which the initial impulse causing the sugar to appear in the urine lies outside of the liver, such as, for instance, pressure on the fourth ventricle. These cases are comparatively rare and are usually discovered only through routine examination of the urine. Cases of this class are often very puzzling to the physician, as all accompanying brain symptoms may be entirely absent; during the early part of the disease, at least, they are very slight. The physician is more or less at a loss regarding his diag-

nosis, and when, perhaps solely as a matter of routine, he examines the urine, he is greatly surprised to find sugar present; then he is very apt to think it is a case of diabetes, whereas the source of the trouble is in the brain, and the glycosuria is only a secondary occurrence.

Under this class should be placed glycosuria following cerebral hemorrhage, concussion of the brain, pressure from brain tumors or new growths, or cerebral edema; in fact, any process causing injury to, or pressure on, the fourth ventricle. It also includes most of the cases incorrectly named diabetes of central nervous origin.

The symptoms in these cases are often more or less indefinite, although in some cases the mental symptoms begin to show up very prominently in the early part of the disease. The urine is usually normal or decreased in amount; it is very apt to be pale, and of no very high specific gravity; it almost always shows some albumen, and sugar varying in amount from 10 to 75 grams in twenty-four hours; no diacetic acid is present, but at times acetone may be found. Physical examination of the liver and pancreas is negative. The prognosis depends entirely on the condition that causes the sugar and usually no dietetic treatment is necessary since the sugar will disappear from the urine if the condition in the head clears up.

Acute appendicitis may cause sugar to appear in the urine. From this cause it is present in only small amounts (5 to 50 grams) and immediately disappears following removal of the appendix or recovery from the acute condition. Prognosis good and diet need not be changed.

Cancer of the liver is frequently accompanied by sugar in the urine. The urine is decreased in amount and contains only small amounts of sugar (5 to 50 grams), but there is frequently a very great increase in the indoxyl. Prognosis is, of course, bad and there is no necessity for changing the diet.

Gall stones rarely cause sufficient disturbance in the liver to cause sugar to appear in the urine; when sugar appears due to this condition it is in very small amounts and disappears immediately after operation. Prognosis depends on the advisability of operation; there is no necessity of changing the diet. We now come to the forms that are characterized by an organic disturbance in the pancreas.

TYPE 1.

Acute in onset, which may be so sudden that the mother of the patient may be able to tell on what particular night the intense thirst began. This type usually occurs in children, about 75% occurring between one and twenty years of age. It is very frequently preceded by an infection of the tonsils. There is intense thirst, frequent urination of large amounts of normal colored urine (2000 to 5000 c.c.) daily, high sp.gr. (1030 to 1050), large amount of sugar (150 to 900 grams) daily, and acetone, which is usually accompanied by diacetic acid. There is greatly increased appetite and a progressive loss of flesh.

The sugar is not so quickly or easily eliminated from the urine as in the hepatic forms, as it does not depend so absolutely on the carbohydrate content of the food. It is due to an infection of the pancreas entering usually through the tonsils. A clinical point well worth notice is that after the patient has been placed on a diet which allows the urine to be sugar free, suddenly, without any change of diet, if the patient has an infection of the tonsils, the pancreatic process will start into activity, sugar will reappear in the urine, and even if we are able to get the urine sugar free again the carbohydrate tolerance is permanently lowered. Prognosis bad in about 85% of the cases, as after one or two recurrent infections the process becomes rapidly and steadily progressive.

TYPE 2.

This occurs in patients twenty to fifty years of age, onset less sudden, large amount of normal colored urine, great thirst, dry, cracked tongue, increased appetite with loss of flesh, odor of acetone on the breath. Four thousand to twenty thousand c.c. of urine and 250 to 1000 grams sugar daily, acetone and diacetic acid present. It is hard to eliminate all the sugar from the urine and there is the same peculiarity regarding the recurrence of sugar following any infection of the tonsils as was mentioned under Type 1. Prognosis bad within a year in about 40% of the cases and about half of the remaining 60% die from some intercurrent affection within a few years.

TYPE 3.

This includes cases where sugar (not lactose) appears in the urine of pregnant women (these

must be carefully differentiated from cases where pregnancy occurs in women affected with some of the forms of so-called diabetes). I have placed these cases under the pancreatic form because I think that the faulty metabolism originates in the pancreas. There is no history of thirst, large amount of urine, etc., previous to the third month, at least. The amount of urine may vary from normal to 4000 c.c. (if large amount, the color is pale); the amount of sugar is usually less than 50 gms. Prognosis good, and no particular treatment is required except to restrict the amount of sugar, candy, and maple syrup until after labor.

With these various types of glycosuria in mind, let us consider the broad question of diet, as only by diet, at present at least, are we able to control this condition.

In regard to the cases which might be classified as temporary glycosuria (Type D), where the cause is pressure on the brain or inflamed appendix, etc., the original seat of the trouble should be sought and remedied, if possible, and very little attention need be paid to the diet.

As to the Types A and B, due to primary functional disturbance in the liver, which are perhaps the most common forms seen in practice, the diet plays the most important part; for it is because of improper diet continued for a long time that the function of the liver becomes deranged and sugar appears in the urine.

During the past two or three years the so-called "starvation" treatment has become very popular, more especially with physicians. I feel that this "starvation" treatment, as at present carried out, is to a large extent a serious mistake. For four or five years I have been using a diet (oftentimes with better results than have been obtained with strict "starvation" treatment) which has accomplished all the results sought, with no loss of strength to the patient, no unfavorable symptoms, no danger of coma (which sometimes happens during the strict application of the starvation treatment) and, what also must be considered from the patient's standpoint, with less discomfort.

There are certain broad rules that I use for my guidance as to diet in these cases. First, the carbohydrate tolerance, or ability to take carbohydrates without causing sugar to appear in the urine, varies with each individual case. Consequently the amount and kind of carbohydrate allowed in the diet must be determined for each individual patient. Then arrange the diet so

that this carbohydrate is given in the form most pleasing to that particular patient.

Also remember that the carbohydrate tolerance varies in each patient with different foods and does not follow absolutely the chemical analysis. For instance, one patient on a uniform diet will show no sugar in the urine when four ounces of potato are added to it, but will show sugar when one ounce of bread is substituted for the four ounces of potato; and another patient will show sugar when four ounces of potato are added to the diet, but no sugar when one ounce of bread is substituted for the four ounces of potato.

In hepatic glycosuria the tolerance for carbohydrates increases the longer the patient remains sugar free, but it does not increase, or only to a slight extent, in the pancreatic form.

The amount and kind of food necessary for each individual to enable him to carry on his work varies also very widely in a practical way, notwithstanding the theoretical teaching that 2500 calories, for instance, are enough for the ordinary business man. Enough food must be given to allow the patient to perform his allotted and necessary duties without too much discomfort.

Furthermore, due regard must be given to any gain or loss of weight. The normal weight for each individual should be determined early in the treatment and the patient brought to that weight (in many instances slowly) and held there. I consider the frequent use of the scale to determine the patient's weight a *very* important aid in determining the quantity and quality of the diet. In fact, I believe that the analysis of the urine as to sugar, the gain or loss of weight, and the patient's subjective symptoms are the three most important points in determining what he should eat.

Patients do better when they receive daily some green or uncooked food.

It has been my experience during the past twenty years that cases of glycosuria can be handled more easily and much more successfully in an institution where the kind and amount of food given and the output of urine can be watched accurately until the proper basic diet for that particular patient has been determined, and where, also, the patient does not see other articles of food which he is not allowed to eat. In fact, I am so firmly convinced of this that I will not accept cases for treatment unless they will enter some suitable hospital or sanitarium

and remain for the few weeks necessary to determine what is the proper diet for that particular case.

Often it can be decided, after talking for a few minutes with the patient, from what form of diabetes he is suffering. If, as is usual, it appears to be the hepatic type, I allow the patient to continue on his usual diet for twenty-four hours, so as to give me a basis in computing the reduction of sugar. After this preliminary twenty-four hours, the patient is placed on a diet approximately as follows:

Breakfast.—A half orange or a quarter grapefruit, one or two eggs, two Listers muffins with butter, one cup coffee.

Dinner.—Eight ounces of thin meat soup, one or two vegetables, two Listers muffins with butter, and water.

Supper.—Eight ounces of thin meat soup, one vegetable, three Listers muffins with butter, six olives or a small amount of cottage cheese, with a cup of weak tea if the patient wishes it.

In regard to vegetables, I let the patient select according to his individual taste, from the following list: lettuce, celery, asparagus, cucumber, spinach, dandelion, Swiss chard.

On this diet the sugar will entirely disappear from the urine in from one to three days. The rapidity with which it disappears is an added help in determining the type of glycosuria under treatment and also in determining the carbohydrate tolerance for that particular patient.

Forty-eight hours after the sugar has disappeared, I begin to make additions to the patient's diet, adding a saccharin dessert or a baked apple sweetened with saccharin, and if the sugar does not return after two days, I add a portion of meat or fish once a day. Two or three days after this addition, if no sugar has appeared in the urine, I increase slowly and cautiously the variety of vegetables, adding to the list string beans, green peas, cauliflower, cabbage, etc., and watching the urine each day after the addition of the food to see whether there is any return of sugar. In this way it is possible to tell how much and in what form it is best to give the patient the carbohydrates, and in the course of two or three weeks a normal basic diet for that particular patient is established on which he remains sugar free and yet is able to attend to his necessary tasks and still feel reasonably contented. After that, it is only a question of trying various articles of food which the patient craves. For instance, if

a patient is very fond of milk, I allow him, after determining his normal basic diet, to take six glasses of milk during twenty-four hours for two consecutive days. If no sugar appears, I permit him in the future to use at least two glasses of milk daily.

What I am trying to emphasize is the necessity to individualize cases and, in prescribing diets, to take into consideration the patient's habits, his ability to get various kinds of food, and his likes and dislikes.

A few general remarks in regard to various forms of bread may not be amiss. I have tried practically every kind of bread, more especially the so-called gluten breads, and also the various flours. It is almost impossible for a patient to continue for any length of time without something in the nature of bread. The gluten flour contains at least 20 per cent. carbohydrate, many of them very much more; and while they are a great advance from the ordinary wheat bread, still they are comparatively rich in carbohydrate.

During the past three years there has been put on the market a flour that contains less than one per cent. carbohydrate and which makes a very palatable biscuit. It is Listers flour. By the use of biscuits made from this flour, the patients are allowed bread and a great deal more latitude in the choice and amount of vegetables. I feel that the availability of a flour of this analysis has done more to aid the treatment of cases of so-called diabetes than any other one thing.

The question of automobile riding is asked by almost every patient. With some there is a return of sugar after a fifty mile ride, and with others we do not get any return after a three hundred mile ride. Therefore, if this question is asked, I advise the patient, after being placed on his basic diet, to try riding fifty miles. The urine excreted during the eight hours after the return from the ride is examined, and if sugar appears the automobile riding is advised against. If none appears the patient is advised to take a longer ride, say two hundred and fifty miles, and the urine for the next twenty-four hours is carefully examined for sugar. If after this ride no sugar appears in the urine I feel safe in allowing the patient to ride 50 miles a day.

If from the history of the case, it appears probable that it is of the pancreatic form, I prescribe somewhat the same diet as outlined above, except I restrict the amount of butter,

but I do not expect the sugar to disappear as quickly as in the cases of the hepatic form. If there is decided emaciation and the history shows the case to be one of rapid progress, I give a much more liberal diet and consult, to a large extent, the patient's comfort, knowing that when the process in the pancreas has progressed to a considerable extent, a strict diet will at the most only prolong life for a few days, with corresponding discomfort for the patient, and may even, instead of prolonging life, hasten the coming of coma and death.

I wish to emphasize a warning here against placing a patient who is much emaciated and far advanced in the disease, on a very strict or so-called "starvation" diet, as this will very likely cause fatal coma to appear within a short time. Rather these patients should be allowed within a short time considerable quantities of fresh fruits.

If, after two or three days, the sugar disappears entirely from the urine, I then very cautiously and slowly (much more so than in the liver form) increase the amount and quality of the food, cautiously trying other vegetables. In this form the carbohydrate tolerance never increases to any extent. In fact, if we can keep it from decreasing, we ought to feel very well satisfied.

If the patient is troubled with the formation of gas in the small intestine and shows an increase of indoxyl in the urine, I give him Bulgarian bacillus or buttermilk.

Many times patients become constipated when placed on a restricted diet. If they do not defecate normally after three days, soap and water enema is given and repeated, if necessary, every three days. But as soon as the patient's tolerance has been determined, I try to add enough bulky food to ensure a normal daily passage. In many badly constipated cases especially of the hepatic form, biscuits made of half bran and half Listers flour may be used.

As to saccherine, I will state, after having constantly used this sugar substitute in some cases for twenty years, that I have never seen it cause any ill effects. My experience has led me to consider it a most useful adjunct in the treatment of cases of glycosuria, as its use allows many patients to satisfy their great craving for something sweet without partaking of carbohydrate, and consequently makes it much easier to remain on a suitable diet.

In closing, I would say: discover, if possible,

from which form of the condition called diabetes the patient is suffering; remove the cause, if it can be discovered (and it frequently can), and then treat each individual patient according to his likes and dislikes for various articles of food, his ability and willingness to follow a certain diet, and his strength and his weight. In other words, individualize each case. Don't, when a patient comes to you with sugar in the urine, think you have given him proper attention by handing him a slip of paper containing a list of foods labeled "may take" and "must not take," with orders to follow that; and don't put every case to bed on a water and brandy (so called "starvation") diet for two to six days, then through a course of thrice boiled green vegetables, next five per cent. vegetables, next, if still sugar free, ten per cent. vegetables, and after that a diet containing 2505 calories, and while looking wise and scientific, explaining that 2500 calories are enough and you have added five extra for good measure.

MEDICAL SUPERVISION OF FRAMINGHAM SCHOOLS.

BY WILLARD BOYDEN HOWES, FRAMINGHAM, MASS.

WE have come to know that health is as much a national resource as coal mines or waterfalls, and as such should be protected and fostered in every way possible if we are to approach this greatest of all conservation problems with the perspective of modern conservation methods.

Disease has decreased just so far as we have come to know the causes and conditions influencing the viability of disease, just so far as we have been able by education, law, and economic adjustment to induce people to take advantage of our findings which make for their own personal safety and comfort.

Education is the greatest factor influencing disease control and health conservation. The earlier in life we can learn the fundamental principles which tend to guide us in the paths of health, the more effective and useful will be this acquired knowledge. Of all the channels that are being used to get health propaganda before the people, there is no greater opportunity nor more logical field for effective educational health endeavor than in our public schools.

Children spend from eight to twelve years during their developmental stage in schools and should receive the medical supervision and instruction during this school period which will make for health. It is just as important for a child to know how to preserve his health, to appreciate the value of sound teeth and good posture, as it is that he should know the capitals of the New England States, or how much tobacco Connecticut raises per acre. The public school is the place where the child will acquire this knowledge if it is to be obtained in time to be of real value to him in the battle for personal health and physical fitness. This knowledge will, in a measure, give the child an opportunity to influence his own hygienic environment and will allow him to avoid some unmistakable disease-producing practices which otherwise would be adumbrated by less important subjects.

Industry has learned from experience that it pays for pecuniary reasons, to keep its employees in the best physical condition possible.

The day is not far distant when our school committees will deem it their duty to graduate from public schools under their jurisdiction children equipped physically as well as mentally to cope with the problems and responsibilities of post commencement life.

We are compelling every child by law to have a bill of health when he leaves our schools to go to work, but we are doing very little toward furnishing him with the necessary physical qualifications while he is preparing for work. There is no sadder sight than a boy with a diploma in his possession, lacking the physical energy to put his hard earned knowledge to work.

If we could but include the proper instruction and medical supervision in the curricula of our schools a very great economic waste would be prevented, along with the misery and disappointment which inevitably accompanies physical weakness and disease.

A great stride in preventive medicine will have been realized when the school children of the land receive the medical consideration which the school alone can and should give.

Framingham is attempting to solve its school health problem and undoubtedly has the best school health machinery in the State. The staff consists of a full-time school physician, nurse, dental hygienist, teacher of posture training, physical training teacher, and a part time den-

NUTRITION	Total Number Examined 2449	
	168	6.8 % Excellent
	1055-43%	Good
	1024-41.9%	Fair
	200	8.2% Poor
408-16% Anemic		
Total Number Examined 2449		
TEETH, TONSILS, GLANDS	1681-68% Defective Teeth	
	1113-45.5% Enlarged Glands	
	707-28%	Tonsils Class I
	270	-10.9% Tonsils Class II
	190	-7.7% Tonsils Class III
288 - 12% Nasal Obstruction		
Total Number Examined 2007		
EYES, EARS, SKIN	133 -8.6% Defective Vision	
	71 -2.3% Other Diseases of Eye	
	22-1.1% Defective Hearing	
	25-1% Discharging Ears	
	22 -3.6% Skin Diseases	
293 12% Postural Defects		
Total Number Examined 2449		
HEART	Total Number Examined 2449	
	39	-3.6% Mitral Murmurs
	34-1.3%	Aortic Murmurs
	23-.9%	Pulmonic Murmurs
	39-1.5%	Functional Irregularities of Rhythm
28-1% Organic Disease		
LUNGS	Total Number Examined 2449	
	17	7% Bronchitis
	11 -.45%	Pulmonary Tuberculosis
	6-.24%	Pleurisy
	64	With Abnormal Physical Signs of Lungs Under Observation
NERVOUS, SPEECH DEFECTS, MENTALITY	Total Number Examined 2449	
	24-.9% Nervous Diseases	
	12-.48% Speech Defects	
	23-.9% Mentality	

tist, for a unit of approximately 2,500 grade school children. A complete physical survey of the school population, the results of which are given in detail below, give some idea of the immediate need for corrective health measures, as well as preventive instruction. Future surveys will show how effective this school health machinery has been in dealing with existing conditions.

RESULTS OF THE PHYSICAL SURVEY.

NUTRITION.

The subject of nutrition, because of the war and food regulation, has been given more thought than formerly. Any scale of nutrition which we may adopt for a guide will be more or less elastic; the personal equation also must

be considered. A scale of nutrition similar to that of Dr. Mackenzie of Dunfermline was arranged using four groupings, Excellent, Good, Fair, Poor.

Excellent, nutrition above the normal healthy child, every objective sign indicating bodily vigor with evidence of perfect metabolic processes.

Good, includes those who fail to reach the excellent standard yet are well nourished normal healthy children.

Fair, borderline cases, who are below par and require watching and corrective suggestions.

Poor, cases with marked signs of mal-nutrition requiring medical supervision.

Of the 2,449 children examined 168 or 6.8%

were classified as excellent, 1,055 or 43% good, 1,026 or 41.6% fair, 200 or 8.2% poor.

ANEMIA.

408 or 16.1% of all children were found to be anemic. All children who were classified under poor nutrition were anemic. The degree of anemia was not serious except in four cases.

HYPERTROPHIED CERVICAL GLANDS.

1,113 or 45.2% had enlarged cervical lymph nodes varying in size from a buckshot to a walnut. Of this number only 36 or 1.2% were considered pathological. The majority of these minor cases are probably secondary to carious teeth.

HYPERTROPHIED TONSILS.

The degree of enlargement of tonsils varies to such an extent that they were classified under three groupings.

Group I.—Slightly enlarged tonsils protruding beyond the faucial pillars with no evidence of history of giving serious trouble, free from secondary cervical glands.

Group II.—Tonsils of considerable size, smooth, without crypts, no marked involvement of cervical lymphatics, negative history.

Group III.—Markedly enlarged tonsils or tonsils with history of frequent attacks of tonsillitis or peritonsillar abscess with crypts or pockets for the lodgment of bacteria, enlarged cervical glands.

1,167 or 46% were found to have hypertrophied tonsils of varying degrees: 707 or 28% were in Group I, 270 or 10.9% in Group II, 190 or 7.7% in Group III. All those falling in the third group were considered in need of immediate operation and parents were notified accordingly. It will be interesting to note from subsequent examinations what changes take place in those cases falling in the first two groupings.

NASAL OBSTRUCTION.

Two hundred and ninety-six or 12% with defective nasal breathing due to nasal obstruction from hypertrophied turbinates, adenoids, or injury to the nose were found.

DEFECTIVE VISION, HEARING, AND DISCHARGING EARS.

Number of children with eyes testing 20/40 or worse, 133 or 6.5%. This does not include the first grade scholars.

47 or 2.3% with other diseases of the eye.

22 or 1.1% defective hearing, whispered voice test of twenty-five feet.

25 or 1% with discharging ears.

HEART DEFECTS.

That heart murmurs are not uncommon in children is shown by the following percentages, mitral murmurs 89 or 3.6%, aortic 34 or 1.3%, pulmonic 23 or .9%, functional irregularities of rhythm 39 or 1.5%.

Of this number 26 or 1% present signs of organic disease.

LUNGS.

With a thorough examination of the lungs with children stripped to the waist, 11 or .45% cases of pulmonary tuberculosis were found; 64 other children with a history and abnormal physical signs in the chest which suggest possible tubercle were noted. These children are being kept under observation. Some of these cases will doubtless fall in the T. B. group.

One hundred and seventy-two or 6.9% of the children examined were found to have bronchitis and 6 or 2.4% cases of pleurisy were diagnosed.

SKIN DISEASES.

Of the skin diseases impetigo contagiosa held first place with 29 or 1.1% with pustular dermatitis, eczema, acne, scabies, ringworm, ichthyosis, following in the above order. One case of ichthyosis congenita, a rare skin affection, was diagnosed.

TEETH.

We are beginning to recognize the etiological rôle the teeth are playing in disease and their far reaching effects. Studies of the last decade with the aid of the x-ray have shown that teeth harboring the activating agents are frequently responsible for many of the cardiac, kidney, joint, nerve, and sinus diseases. In children we cannot think of the developing teeth without being reminded that their influence upon the contour of the face, floor of the nares, sinus development, and consequently resonance and quality of the voice are far reaching.

Dr. Wright of Harvard has proved conclusively that contagious diseases are less frequent in children whose teeth are in perfect condition and whose mouths receive the proper hygienic consideration. Carious teeth provide a splendid habitat for disease-producing germs, therefore the elimination of these culture fields gives one less source of infection and portal of entry.

TABLE SHOWING THE PREVALENCE OF CERTAIN PHYSICAL DEFECTS IN DIFFERENT AGE GROUPS.

	5-10 YEARS		10-15 YEARS		15+ YEARS		TOTAL	
	NO.	PER CENT.	NO.	PER CENT.	NO.	PER CENT.	NO.	PER CENT.
Nutrition Excellent	50	4.6	104	7.9	14	15.5	168	6.8
Nutrition Good	430	40.0	596	45.0	29	54.4	1055	43.0
Nutrition Fair	491	45.7	511	39.0	24	26.6	1026	41.9
Nutrition Poor	103	9.5	94	7.2	3	3.3	200	8.2
Anemic	206	19.0	192	14.7	10	11.1	408	16.1
Enlarged Glands	803	74.7	695	52.6	30	33.3	1113	45.2
Tonsils, Class I.	377	35.1	318	34.0	12	13.3	707	28.0
Tonsils, Class II.	147	13.6	119	9.1	4	4.4	270	10.9
Tonsils, Class III.	78	7.3	105	8.2	7	7.7	190	7.7
Enlarged Thyroid			7	.46			7	.12
Mitral Murmurs	38	3.5	46	3.5	5	5.5	89	3.6
Aortic Murmurs	10	.9	22	1.7	2	2.2	34	1.3
Pulmonic Murmurs	10	.9	13	.92			23	.9
Irregularities of Rhythm	12	1.1	17	1.3			29	1.5
Pulmonary Tuberculosis	4	.3	7	.46			11	.44
Bronchitis	93	8.7	76	5.8	3	3.3	172	6.9
Pleurisy			6	.4			6	.22
Stoop Shoulders	26	2.5	267	20.4			293	12.0
Lateral Curvatures	9	.8	14	.9			23	.85
Pigeon Breasted	13	1.1	16	1.6			29	1.1
Post Infantile Paralysis	3	.27	6	.4	2	2.2	11	.44
Rachitic Type	25	2.3	19	1.4			44	1.7
Defective Vision	42	3.8	89	6.8	2	2.2	133	6.5
Defective Hearing	4	.3	14	.9	4	4.4	22	1.1
Discharging Ears	7	.57	17	1.3	1	1.1	25	1.0
Conjunctivitis	7	.57	3	.2			10	.38
Styes	1	.09	4	.28	1	1.1	6	.22
Blepharitis	15	1.4	7	.46			22	.8
Strabismus	5	.45	1	.07			6	.22
Keratitis			3	.2			3	.11
Nasal Obstruction	171	15.0	120	9.1	5	5.5	296	12.0
Atrophic Rhinitis, ozena			2	.11			2	.07
Defective Palate	2	.15	2	.11			4	.15
Defective teeth	883	82.0	779	59.0	19	21.1	1681	66.0
Furcular Dermatitis	3	.3	6	.4	3	3.3	13	.5
Impetigo Contagiosa	20	1.8	9	.6			29	1.1
Eczema	3	.27	8	.47			11	.44
Acne			5	.34	4	4.4	9	.35
Ichthyosis	3	.27	2	.11			5	.2
Ichthyosis Congenita	1	.09					1	.03
Herpes Simplex	2	.18	2	.11			4	.15
Favus			2	.11			2	.07
Tonsillitis	4	.35	6	.45			10	.4
Ringworm	4	.3	3	.2			7	.21
Scabies	4	.3	4	.28			8	.32
Seborrheic Scales	1	.09	2	.11			3	.12
Poison Ivy	3	.27					3	.12
Pedunculosis	56	5.4	40	3.0			96	3.9
New Growths	2	.15	1	.11			3	.12
Nervous Diseases	12	1.1	12	.9			24	.9
Speech Defects	6	.54	6	.45			12	.48
Mentality	14	1.2	7	.46	1	1.1	23	.9
Pharyngitis	6	.54	7	.46	2	2.2	15	.6
Tape Worm			1	.06			1	.03
Appendicitis	1	.09	1	.06			2	.08
T. B. Hip			1	.06			1	.03
T. B. Radius	1	.09					1	.03

One thousand six hundred and eighty-one or 60% were found to have teeth needing urgent attention. It is obvious that our dental clinic cannot hope to care for all these cases. Their most effective work will be along educational lines, by instruction in the classrooms on the care of the teeth, tooth brush drills, etc.

POSTURE TRAINING CLASSES.

That poor posture is a forerunner of many physical defects is fully established. In the developmental stage, posture is easily influenced. It is in the school between the ages of 9 and 15 that most marked changes of posture are noted.

Drs. Goldthwait, Brown, Mankell, and Osgood have shown the relation between posture, vis-

ceroptosis, types of breathing, and general human efficiency. The child with poor posture is handicapped at the start.

Two hundred and ninety-three or 12% with marked postural defects were found, 23 of this number had distinct lateral curves, while 29 were rachitic, and 11 post-infantile paralysis cases.

The following table shows the prevalence of certain physical defects in different age groups, also totals for all children examined.

The charts show graphically the number and percentage of physical defects found for the total number of children examined.

BEDSIDE RADIOGRAPHY WITH A NEW PORTABLE X-RAY APPARATUS. THE ARMY BEDSIDE X-RAY UNIT ADAPTED AS A PORTABLE APPARATUS FOR CIVILIAN PRACTICE.

By W. K. COFFIN, M.D., BOSTON,

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ADVANTAGES OF BEDSIDE RADIOGRAPHY.

THE x-ray examination of bed-ridden patients in their own homes offers so many practical advantages that any improvement in portable apparatus should be of considerable interest to the medical profession.

Many persons are brought home following accidents and x-ray diagnosis is desired to determine the presence or absence of fracture or dislocation. Others, becoming ill at home, develop some serious condition in which the clinical diagnosis is not clear; x-ray findings might give the clue. For some of these patients a journey to an x-ray laboratory is out of the question; for others it is possible, but rather dangerous owing to the accompanying discomfort, exposure, and exhaustion. Bedside examination in the patients' homes would, of course, solve the problem.

NEGLECTED IN THE PAST.

Considering this fact, it is rather strange that bedside radiography has not come into wide and active usage; while roentgenology, as a whole, has gone ahead by leaps and bounds it has remained more or less dormant, with little change in apparatus, in methods and in popular demand. The explanation lies in two related rea-

sons,—the difficulty of making thoroughly satisfactory radiographs of thick parts of the body with previously existing portable apparatus, and the consequent necessity of charging fees which were beyond the ability of the average patient to pay. (Plates were spoiled, repeated trips from operator's office to patient's bedside were necessary, and, as the calls for bedside work were infrequent, much hurried preparation was needed. All these factors made bedside radiography expensive.) Despite this, there was a certain amount of it done and some very excellent plates made which are a tribute to the technical skill of the operators rather than to their apparatus.

THE ARMY BEDSIDE X-RAY UNIT.

The basis for the improvement to which I referred in my opening sentence is the so-called Army Bedside X-Ray Unit. This apparatus, the result of a series of conferences of x-ray manufacturers with physicists and roentgenologists appointed by the government, was introduced to the Army hospitals a trifle more than a year ago. It proved extremely satisfactory there and is now rapidly finding its way into civilian hospitals,—at least three of Boston's largest hospitals have recently added it to their equipment.

It took excellent plates of any part of the body with one exception,—stomachs in rapid peristalsis, where exposure had to be practically instantaneous. Plates of hips, spines, chests, skulls, and abdominal viscera except the stomach, were uniformly good. In fact, detail was better than with the large stationary machines, owing to the small focus of the radiator tube and to the fact that the focal area, prevented from heating noticeably by the radiator, retained its original smoothness of surface, thus cutting down the blurring due to scattered rays.

The Bedside Unit consists of a transformer and Coolidge filament circuit and control, enclosed in a cabinet on castors which also serves to support a tube holder. The unit must be used with the radiator type of Coolidge tube for these reasons,—the high-voltage x-ray producing current is alternating after it leaves the transformer; it must be made unidirectional before going through the tube; the Bedside Unit, for the sake of portability, dispenses with the bulky rectifier used on stationary machines for this purpose; the radiator Coolidge tube has the unique property of suppressing one phase of the alternating current, thus making it unidirectional.

The Bedside Unit differs from regular stationary interrupterless apparatus in having no rectifier; it differs from other portable apparatus in using a transformer instead of a high frequency coil. The advantage of the transformer over the coil is that, bulk for bulk, it will step-up a far larger current; moreover, more of the current is of the proper voltage for x-ray production and changes in the voltage cycle are not so rapidly fluctuating nor so extreme. The result is more power.

EXPERIENCE WITH BEDSIDE UNIT IN CAMP SHERMAN.

A convincing testimonial as to the ability of the Bedside Unit is furnished by our experience with it in the x-ray laboratory at Camp Sherman Base Hospital. During the influenza epidemic there and for a month afterwards the stationary apparatus was out of repair; during that time we did all the roentgenologic work for this camp of 35,000 men with the Bedside Unit. The results were satisfactory in every respect, except that plates of stomachs in rapid peristalsis would sometimes be blurred. Plates of thick parts, hip, spine, skull, chest and abdominal viscera, except stomach, as well as limbs in plaster casts, were quite as good as those previously taken with the large apparatus. In fact, detail was finer and outlines clearer, owing to the narrow, unroughened focus of the radiator tube. The chest plates were of particular interest as we had many pneumonia and empyema patients, usually dyspneic and frequently with respiratory rates as high as 50 per minute. However, with the Bedside Unit we were able to get a good plate in every instance and were forced to use intensifying screens only some half dozen times. In all the fluoroscopic work,—chest, gastro-intestinal and fracture,—illumination was excellent and outlines clear.

ADAPTATION OF ARMY BEDSIDE UNIT TO CIVILIAN PRACTICE.

But, good as this apparatus might be for ward work in a hospital, it was not, with its cabinet on castors, adapted to the needs of civilian bedside radiography; something was wanted that could be stowed away on the floor space of an automobile and that one man could handle and carry up flights of stairs.

Impressed as I was with the value of the Bedside Unit for bedside radiography, I set about converting it into a truly portable apparatus.

This I did by discarding the cabinet and its important feature, a tube holding device, in favor of a sectional tube stand that could be separated and carried in small compass and that was light. In addition I used the 30 instead of the 10 milli-ampere Coolidge radiator tube which the army unit was equipped with. Also I procured what was said to be a somewhat more powerful transformer than the original one. However, it was essentially the Army Bedside Unit with a sectional tube stand in place of the cabinet.

I have used this modified portable apparatus in, as yet, a limited number of cases, but in enough to say that it is easy to handle, can be carried in the floor space of a small touring car, and has apparently ample capacity for all classes of radiographic work.

At this point it should be stated that in the antero-posterior head views where extremely accurate positioning is required, some difficulty will be experienced, not through any fault of the apparatus but because it will be hard to get a sick, restless patient lying on a sagging uneven mattress to assume and maintain the exact angle of the head needed. Compression in kidney examination will not be so satisfactory on a mattress as on a hard table surface. Gastro-intestinal work will not be thoroughly done with this portable apparatus; too many accessories are needed. However, such patients as those mentioned will rarely need bedside x-ray examination; they are usually able to go to a laboratory.

CLINICAL APPLICATION OF BEDSIDE RADIOGRAPHY.

Let us consider in what conditions bedside radiography will presumably be of greatest value.

First, fractures and dislocations of the lower limbs, pelvis, spine, and skull; compound, very loose, or comminuted fractures of the upper limbs; fractures in infants, the aged, the anemic, or otherwise debilitated persons. Such patients are usually in more or less shock, which would be aggravated by the jostling of a journey to a laboratory. Infection, local in the compound fracture cases, general in the debilitated and aged, is a danger that should be minimized by maintaining the patient's resistance; bedside radiography allows this to be done.

Next come pulmonary infections, acute and chronic. In a clear cut case of lobar pneumonia with a definite crisis and no sequelae there is no particular point to an x-ray examination. How-

ever, not all cases are of this diagnostically satisfactory type. There are central pneumonias, broncho-pneumonias, localized inflammatory processes about the lung roots, infections of the large lymph nodes and small single or multiple areas of peribronchial infection that give little or no clue to their existence on physical examination. The patient is apt to be acutely sick, the history suggests pneumonia but the diagnosis is not positive and a general state of uncertainty and dissatisfaction prevails. X-ray examination makes diagnosis certain and allows an intelligent prognosis as to duration and outcome.

A more important class for whom bedside radiography should mean much is the definitely post-pneumonic. Usually the problem will be—Is there an empyema? The skilled examiner will, of course, usually detect a peripheral empyema but an interlobar pus collection is another matter; and experience during the influenza epidemic in army base hospitals where the x-ray was extensively employed proved that it was a decidedly common occurrence. Besides empyema, other conditions to be differentiated by radiographic examination are lung abscess, areas of broncho-pneumonia, unresolved lobar pneumonia, bronchiectasis and chronic bronchitis. Pericarditis with effusion and latent tuberculosis activated by the pneumonia will sometimes be found to explain the continued illness.

Pulmonary tuberculosis in and of itself will rarely come within the special field of bedside radiography; patients in whom there is any doubt as to diagnosis will usually be able to go to a laboratory. Rarely, miliary and pneumonic forms with negative sputa will be appropriate cases. More often the function of bedside radiography will be to rule out tuberculosis in the not infrequent patient with unexplained fever where typhoid with negative culture and Widal, septicemia, endocarditis, pyelitis, sub-phrenic abscess, and tuberculosis are all considered as possibilities. The patient is very sick, and accurate diagnosis within the shortest possible time is highly desirable: hence bedside radiography is particularly suited to such cases.

Another large group is that of focal infection. Arthritis and endocarditis are its commonest expressions. Patients with either one in the acute stage should not undergo any unnecessary exposure or make any needless exertion. Yet the determination of infected foci in teeth or sinuses is of the utmost importance and it should be done at once, not after the disease has fortuitously

reached a temporarily quiescent state, for then permanent damage has been invited if not actually received. The wise course is to locate the focus as early as possible and eradicate it before the heart, joints, and physical stamina of the patient are seriously injured. Bedside radiography discloses root infection and diseased sinuses with no strain imposed on the patient.

In the cardiac group pericarditis with effusion or adhesions may be shown. It may prove of some value in broken compensation, less because of confirming or reversing diagnosis as to valve affected, than by disclosing extent of dilatation, congestion of bases, hydrothorax, emphysema, bronchitis and bronchiectasis, pericardial adhesions, obstruction to great vessels in mediastinum, etc., and thereby permitting the clinician more sharply to focus his treatment.

Osteomyelitis following trauma, or hematogenous, is another important field for bedside radiography. The patient is very sick and movement painful and perhaps dangerous. Bone detail is probably better with the radiator tube and portable transformer than with any other apparatus.

SUMMARY.

Bedside radiography, though offering the advantages of x-ray examination to patients bedridden at home or in hospitals without x-ray equipment, has been neglected in the past. This has been due to the difficulty of getting uniformly good plates with portable apparatus in existence hitherto, and to the consequent necessity of charging fees higher than the average patient could pay. Given a more powerful portable apparatus, then plates uniformly satisfactory could be obtained, fees could be lowered, and bedside radiography would become the active specialty that it should be.

The Army Bedside X-Ray Unit furnishes the basis for this desired portable apparatus. It consists of a transformer, a Coolidge filament circuit and control encased in a cabinet and a Coolidge radiator (self-rectifying) tube. It may be made over, and has been made over by the writer, into a truly portable apparatus by substituting a sectional tube stand for the bulky cabinet. This gives an apparatus that one man can carry up a flight of stairs and that can be easily stored away in the floor space of a touring car. It has ample power and gives exceptionally clear detail, thanks to the small, unroughened focal spot of the radiator Coolidge tube. Its advan-

tage over the previous portable coil outfits lies in its transformer, which, bulk for bulk, car-step-up far more current than a coil.

The classes of cases for which bedside radiography with this new portable apparatus will be particularly applicable are fractures and dislocations, pneumonia, empyema, lung abscess, etc., tuberculosis rarely, acute arthritides and endocarditis for determining presence of infected foci in teeth or sinuses, in some cardiac conditions, and in osteomyelitis. It is not well adapted, nor necessary often, in stomach, intestinal, and renal work, though it may be used when essential.

Book Reviews.

A Manual of Gynecology. By JOHN COOKE HIRST, M.D. Philadelphia and London: W. B. Saunders Company. 1918.

The subject matter presented in this volume is arranged by the author in the manner which has been used during a teaching experience of twenty years. It is intended to give a concise, accurate outline of the subject of gynecology without attempting to discuss it at length. For the student or undergraduate who seeks a basis on which to build, it will prove a help, because it describes methods of treatment which have been the result of practical experience and have met with success. One hundred and seventy-five illustrations are inserted in the text where it is felt that they are needed as assistance in making clear methods of examination, etc. The twenty-two chapters into which the book is divided comprise the following subject matter: Normal Pelvic Anatomy; Methods of Examination; Anomalies of Development; Diseases of the Vulva; Diseases of the Vagina; Abnormalities of the Cervix; The Uterus—Its Normal Position and Relations; Its Abnormalities of Position and Disease; Diseases of the Fallopian Tubes; Diseases of the Ovary; Diseases of the Peritoneum and Pelvic Connective Tissue; Abnormalities of Abdominal Wall; Injuries of Birth Canal and Their Repair; Pathological Sequelae of Childbirth; Diseases of the Urinary Tract, Including Cystoscopy; Gonorrhea; Normal Menstruation and Its Abnormalities; Leukorrhea; Diseases of the Breast; Diseases of the Rectum; Electricity; X-Ray, Radium, Mesothorium, and Finsen Light; Endocrine Glands and their Extracts in Gynecology; General Technic of Gynecologic Surgery.

Beverages and Their Adulteration. By HARVEY W. WILEY, M.D. Philadelphia: P. Blakiston's Son & Company. 1919.

At a time when prohibition has become a subject of national consideration, this discussion of "Beverages and Their Adulteration" should be of particular interest. The origin, manufacture, and chemical composition of alcoholic beverages, both fermented and distilled, of fruit juices, soft drinks, and water, and of the so-called medicines which are in reality non-medicinal but alcoholic, are described. Water, the beverage most freely consumed, is considered in most detail; mineral waters, cider, grape juice, soda water, coffee, tea, cocoa, and chocolate, wine, beer, whisky, cordials, and liquors are analyzed, and the principal types of adulteration are exposed. A chapter dealing with alcoholic remedies enumerates the beverages which are offered to the public under the guise of medicinal preparations. In considering the beverages in common use, the author of this book deals only incidentally with the hygiene, physiology, and the ethical aspects involved in their consumption; his main purpose is merely to describe accurately the nature of these beverages in order that the American citizen may have some knowledge of what he drinks aside from the properties which are ascribed to beverages from the commercial standpoint.

Principles of Bacteriology. By ARTHUR A. EISENBERG, A.B., M.D. St. Louis: C. V. Mosby Company. 1919.

This volume is, with additions, a syllabus of lectures given to the nurses at St. Vincent's Charity and St. John's Hospitals, in Cleveland. The object of the author has been to place in the hands of nurses and laboratory assistants a textbook which, in a fairly simple manner, will incorporate many of the latest and established facts of bacteriology.

The book is divided into three sections and contains many interesting illustrations. Section 1, on General Bacteriology, contains a brief summary of the first conceptions of the transmission of disease from man to man; followed by general information about bacteria, their forms, destruction, theories in immunity, prophylaxis, and general bacteriological technic. Section 2 deals with Special Bacteriology, and numerous tests given in connection with the particular disease are enumerated and explained. Section 3 treats of Bacteria of Unknown Causes. At the end of the book there are a few words on general care of the laboratory, and a list of questions suitable for examination is added. In the chapter on history are briefly reviewed the prominent achievements of American bacteriologists. It is a concise statement of the principles of bacteriology.

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AMERICAN RED CROSS TUBERCULOSIS WORK IN ITALY.

THE American Red Cross Commission for Tuberculosis in Italy has published recently a report showing the results of its endeavor to secure standards of international coöperation in the control of tuberculosis. Activities have been divided primarily into two fields, one of active and one of potential work. In the first group, the principal problems were provincial and communal organization, visiting nursing, school hygiene and child welfare; the latter included careful studies in certain allied problems for good public health and welfare.

It has been estimated that the number of deaths from tuberculosis in Italy increased from 51,959 in 1914 to 60,938 in 1916. At the present time, organized effort against tuberculosis has

only just been begun in Italy. The number of beds available for the tuberculous among soldiers and returned prisoners is 20,540, yet many of these beds remain unoccupied, partly because of Italian dislike for hospital care, the lack of knowledge about tuberculosis, and absence of military control after the men have been discharged from the army.

Italy has two strong health organizations, the Department of the Interior and the Army, and, in addition, two voluntary organizations through which attempts were made to establish international coöperation. It was decided that the American Red Cross could work most effectively in the provinces of Liguria, Umbria, Palermo, and the two provinces of the Island of Sardegna. For these districts charts were prepared of public health organization, anti-tuberculosis organization, child welfare organization, and school hygiene, which were suggested to the inhabitants as possible sources of help in their problem. The Italian people were open-minded and aware of the need which these plans supplied.

In Genova, a provincial organization was organized for the five districts, and a program was outlined to include dispensaries, visiting nursing, school hygiene, school nursing, hospitals, sanitation, and free use of laboratories. This voluntary organization operates in coöperation with government officials. A similar program was arranged for the region of Umbria.

In Sardegna, the plan was somewhat difficult. Provincial organizations were established in the two provinces of the island, united into an inter-provincial committee for the whole island.

In Palermo, in Sicily, still another plan was adopted. An anti-tuberculosis league was formed composed of the existing anti-tuberculosis associations, the Marine Hospital, the Children's Hospital, the Italian Red Cross, the Wilson Institute of Child Culture, representatives of the government, members at large elected from among the aldermen of the municipality, the Cardinal of the Roman Catholic Church, and the Allied Women's Clubs.

The chief power in this whole program against disease was organization, which had been practically unknown and untried in Italy. The same principles which had been applied to the larger groups were extended also into single circondarii and communes, where organization could be accomplished by individuals.

Another agent in public health work which was practically unknown in Italy was the public

health nurse. In order to secure immediate help for large numbers of sufferers, three schools were opened in Rome, in Genova, and in Palermo, to which only Italian students were admitted. The amount of hospital experience required varied with the school; the highest standard was fixed in Rome, where two years' hospital experience under war conditions was the minimum. A group of American nurses acted as teachers and consultants, directing the courses and putting them on a working basis. It is interesting to know that these American nurses were successful in their teaching; they were accepted immediately in the homes and their value was appreciated by the Italian physicians.

In organizing methods of improving school hygiene in Italy the work of the commission was carefully planned. Italy has three and one-half million registered school children between the ages of six and twelve, and an additional million unaccounted for in the school register. The plan for this work was to study by questionnaire the status of school hygiene in Italy; to check by personal visits the answers to this questionnaire; to secure, if possible, a physical examination of several thousand school children in different sections of the country for comparison; to assist in the correlation of the various excellent pieces of Italian work into a national program of child hygiene, to provide manuals for medical inspection and school instruction in hygiene, physical training, and infant hygiene; and to establish, if possible, one district on an ideal basis as a demonstration.

In child welfare work many problems were presented in Italy. A study was made of the pre-war status of children in Italy; of the situation which resulted from the war conditions and its effect upon the children; of the tasks of existing organizations for child welfare, and the effects of the war upon them; and of those people not directly concerned in child welfare work. It was found that although before the war child welfare work had been started in many centers, it had been neglected during the war emergency work. Visits were made by members of the Commission to most of the provinces in the North of Italy, to the Islands of Sicilia and Sardegna, to the Adriatic Coast, from Rimini to Tarento and to Napoli. It is to be regretted that the Child Welfare Section was not allowed sufficient time to put into operation any active work, although the ground-work of coöperation was laid in a number of localities.

MEDICAL CONFERENCE AT CANNES.

In a series of pamphlets issued by the League of Red Cross Societies, Geneva, Switzerland, reports of various sections of the medical conference have been outlined. Delegates from Great Britain, France, Italy, Japan, and the United States have indorsed the medical program for Red Cross coöperation in combating disease and promoting public health, believing that no other organization is so well prepared to undertake the development of measures for public health and sanitation, the welfare of children and mothers, the education and training of nurses, the control of tuberculosis, venereal diseases, malaria, and other infections and preventable diseases. During the war the Red Cross has proved itself to be an agency for good of unparalleled force and power; in time of peace the potential usefulness of the Red Cross in promoting health and preventing disease is unlimited. It has therefore been recommended that a Bureau of Health, with a Director and a State and an Advisory Council, be established in connection with the League of National Red Cross Societies. The organization is to be a voluntary agency, whose purpose is to strengthen and assist in every way possible other voluntary and national health and relief agencies.

The Bureau of Health of the Red Cross has submitted resolutions adopted by the conference held at Cannes, April 1 to 11, relating to preventive medicine, child welfare, tuberculosis, malaria, venereal diseases, and nursing. The report of the Section on Preventive Medicine considers briefly the broader questions concerning public health legislation and administration and several special topics of immediate importance. It is stated that in many countries there do not exist adequate measures for the improvement of the public health; in these places public sentiment must be educated to demand good public health laws, and efforts made by the Red Cross to initiate their enactment.

Among matters of public health administration, the registration of vital statistics and notification of certain infectious diseases, public health laboratories, public health nursing and visiting, and public health education should receive special consideration. Special problems which will present themselves are certain epidemic diseases,—such as cholera, plague, typhus, influenza, and yellow fever,—whose prevalence is so great that they become a problem of inter-

national proportions. Because of their significance in the prevention of tuberculosis, venereal diseases, malaria, and in child welfare, housing and town planning present important questions to be considered. As a means of improving the public health and preventing disease, public health laboratories must be established and all possible assistance, such as gifts of apparatus, funds, or furnishing assistants should be offered by the Red Cross. It is believed that typhus fever is such a serious menace that efforts to control and prevent its spread should be undertaken immediately.

The Report of the Section of Child Welfare outlines the measures to be undertaken for the wide extension and development of child welfare work. It is the children who feel most heavily the effects of all unfavorable hygienic, social, and economic conditions. The war has increased infant and child mortality; the health of many children who have survived has become greatly impaired because of improper food and neglect; and the war and recent epidemics have greatly increased the number of dependent children. It is of prime importance now (1) to save the infants yet to be born and to promote their health development; (2) to restore the health and make possible the normal growth and development of children who are now suffering from disease or defective nutrition, and to safeguard the health of those whose nutrition has not yet suffered; (3) to do something for the immediate needs of dependent children. Work relating to child welfare may be divided into six parts corresponding to the period of child life to which it is directed: eugenic considerations affecting the prospective parents, the pre-natal period, obstetrical care, supervision during the period from birth to school age, care and instruction during the school age, from six to fourteen or sixteen years, and attention to the health and development of children in the industrial period, from fourteen to eighteen years. In view of the child suffering which has been particularly acute because of the war, the Section on Child Welfare urges the consideration of emergency action in this field.

The Report of the Section on Tuberculosis has recommended that dispensaries, furnished with laboratories and appropriate equipment and affording provision for early diagnosis, and having especially trained nurses who will carry into the homes of patients the necessary care, are one of the fundamental and

indispensable factors in controlling and preventing tuberculosis. There should be also provision for the inspection of school children, for hospital treatment, sanatorium care, and popular education regarding tuberculosis. Working and living conditions should be improved; measures should be adopted to prevent the transmission of tuberculosis through infected milk; open air schools should be constructed; there should be a closer coöperation between dispensaries, hospitals, and sanatoria, and more extended development of skilled social service under medical direction; suitable occupations should be provided for tuberculous people; and scientific research in the field of tuberculosis should be increased.

The Section on Malaria has recommended (1) that a Central Malaria Bureau, or Section, should be inaugurated as soon as possible as a part of any general organized scheme for work in this field; (2) that this Central Bureau or Section should seek, through the National Red Cross Societies, to enter into coöperative relations with national agencies for the control of malaria; (3) that it should keep in touch with the progress in malaria control in all countries, and make use of the achievements of each for the stimulation and guidance of all; (4) that as opportunity offers and means are available, it should coöperate with existing agencies in active measures for malaria control; (5) that a comprehensive study of the literature and of the geographical distribution of the disease be made; (6) that a series of telling demonstrations in the control of malaria be made; and (7) that all available information be collected and widely distributed.

The Report to the Conference by the Section of Venereal Diseases presents an outline of the work necessary in combating venereal diseases. The campaign must necessarily include measures for the protection of individuals not yet infected, for the elimination of conditions of environment favoring dissemination of venereal diseases, for the discovery, treatment, and control, where necessary, of individuals already infected, for accurate observations and recording of data relative to efforts to combat venereal diseases, for furthering research upon venereal disease infections, and for the demonstration of new methods and measures for education. Education in the nature of venereal diseases and methods of control should be provided for students, doctors, nurses, social workers,

moral and religious workers, legislative authorities, and the general public.

The Section on Nursing has recommended that the Central International Red Cross Bureau should include a nursing department, which should seek (1) to act as an intelligence center, to collect, analyze, and distribute information; (2) to undertake propaganda in countries where trained sick nursing and public health work are not at present fully developed; (3) to seek out in these countries suitable personnel for training both in sick nursing and in public health work, to advise and assist them to obtain the necessary training, and to return them to their own countries as pioneers; and (4) to arrange for conferences of representative nurses and health workers from all countries for the interchange of ideas.

These recommendations and resolutions presented at the Medical Conference held at Cannes serve to indicate the vast problems which the Red Cross will attempt to solve, and to outline the programs adopted by the various Sections for the promotion and development of Red Cross activities in the prevention of disease and the betterment of the general health and welfare of the people in all countries.

JOHN COAKLEY LETTSOM

THE life of John Coakley Lettsom, the founder of the first of all the medical societies of London, in the year 1773, and his place in the medical and social life of the Georgian period, has been admirably pictured in the presidential address delivered by Sir StClair Thomson before the Medical Society of London on October 6, 1917.

John Coakley Lettsom was born in 1744 in the West Indies, into a family which could give him few advantages and little home influence. At the age of six, he was sent to England to a small Quaker school at Penketh, in Lancashire, where he remained until he was fourteen years of age, entering into sports which developed his physical vigor, his powers of observation, and his resourcefulness. He next went to Liverpool for a business training, but at the end of a year became apprenticed as a pupil to a surgeon and apothecary in Yorkshire. During

his five years under this master, Lettsom acquired a love of learning, memory training, habits of work, and the faculty of managing patients.

At the age of twenty, Lettsom started for London, without money and without friends, and studied medicine. After two years in a hospital there, he returned to the West Indies, where he practiced for a short time. Later he visited London, Edinburgh, and Leyden, where he received the degree of Doctor of Medicine in 1769. He settled ultimately in London, and by the time he had reached the age of forty, he had acquired the first practice as a physician in that city. He purchased a country house at Grove Hill, Camberwell, where he was visited by many distinguished foreigners. But Lettsom's good income, generously spent, was earned by constant hard work. It is recorded that at the age of twenty-three he seldom prescribed for fewer than fifty, and often for twice as many patients before breakfast. He mentions that for nineteen years he took no holiday, and spent a good part of his nights in a traveling coach. Yet in spite of his extensive practice, Lettsom's life was filled with varied interests, and he rendered important public service as a philanthropist. In 1770, he founded the General Dispensary in Aldergate Street; he established the Sea Bathing Infirmary at Margate; he was an active member of the Philosophical Society; he was one of the founders of the Royal Humane Society; and the amelioration of the condition of the poor and helpless was his constant care. His interest in botany, agriculture, and fossils was keen. He was the author of "Naturalist's Companion," "Essay on the Effects of Heated and Stagnant Air," "Hints Respecting the Effects of Hard Drinking," "Hints Respecting the Chlorosis of Boarding Schools," three volumes of collected essays under the title, "Hints Designed to Promote Beneficence, Temperance, and Medical Science," and "Recollections of Dr. Rush." Among his scientific work may be mentioned "Reflections on the General Treatment and Cure of Fevers"; among his biographical works, "The Natural History of the Tea Table with Observations on Its Medical Qualities"; and of his work of popular and philanthropic nature, "Practice of Physick."

The many foreign honors which were bestowed upon Lettsom give evidence of the respect in which his literary, philosophical, and

benevolent character was held. He had many friends in America, where he was regarded with high esteem. His judgment was held in such faith that he was entrusted with the selection and purchase of books for the Pennsylvania Hospital. He was the first to send Jenner's smallpox vaccine lymph across the Atlantic, and sent the seeds of the mangel-wurzel to George Washington.

Lettsom's varied interests and general culture, and his hospitable and cheerful character brought him into contact with many celebrated people. He was frequently received by King George III, listened to Pitt and Fox in the House of Commons, corresponded with George Washington, Benjamin Franklin, Erasmus Darwin, and Sir Charles Linne. It is with wonder that we review Lettsom's enormous practice by day and night, his long coach journeys, his multifarious social engagements, his hospitable entertainments, his voluminous correspondence, and his extensive publications. Yet, in spite of his strenuous life, he lived to the age of three score years and ten. His health was excellent and his habits temperate. He was tall and delicately built, his face was strongly furrowed, his skin was of a dark yellow tint, and he wore the dress of the Quakers. His natural ability was good, to which he added great perseverance and industry. His memory was poor, which made it necessary for him to adopt methodical habits of work. Lettsom's astuteness was remarkable, enabling him to earn a large income early in life and to continue it during many years. A hint as to his shrewdness is his approbation of the advice, "Please thy master, and above all, please thy mistress."

Although Lettsom was a keen observer and a ready writer, he never made any noteworthy contribution to medical science. He received no great hospital appointment, and had no pupils to spread his fame. To his own personality, his sincerity, his great industry, and his direct influence upon his patients, may be attributed his professional success. Lettsom made many friends and few enemies; his relations with his professional colleagues were cordial, and with his wife, most happy. His life was characterized by great vitality, activity, and humanity to the end. His death came swiftly, ten days after he had assisted at a post-mortem examination during which he remained for two hours in a cold room, and five days after a visit to his last patient.

MEDICAL NOTES.

LOOMIS SANATORIUM.—The Loomis Sanatorium at Liberty, New York, is designed to care for tuberculous patients who have a good chance of recovering and for those who show some predisposition to the disease. During the year, three hundred and sixteen patients were admitted and three hundred and thirteen discharged. Of patients under treatment for more than a month, twenty-one died during the year.

The treatment at Loomis Sanatorium is based on the three following methods: (1) Dietetic hygienic treatment; (2) the employment of special measures, such as tuberculin, artificial pneumothorax and vaccines; and (3) the employment of graduated exercises for the purpose of producing controlled auto-reactions or "auto-inoculations." Tuberculin has been used in the past year as a therapeutic agent less frequently than in former years, and induced pneumothorax has been performed in a greater number of cases, with good results. The institution has been conservative in the employment of these therapeutic measures. The twenty-second annual report contains a detailed medical report of the tuberculous cases treated at the institution.

THE DANGER FROM RATS.—The United States Public Health Service has pointed out the seriousness of the rat menace, and has advocated state and municipal action and the passing of a rat-proofing law. Rats have transmitted bubonic plague to all parts of the world, until it now exists in English seaports, southern Europe, Africa, in practically all the ports of the Orient, and on the east and west coasts of South America. The rat has probably caused the loss of more lives and money than any other parasite.

Rats cannot be destroyed wholly by individual efforts; measures must be put into effect by entire communities. Trapping, poisoning, the use of natural enemies, such as cats and dogs, and care in preventing rats from gaining access to food will aid in destroying them; but the municipal government can greatly assist these efforts by the passing of rat-proofing laws. The Public Health Service has emphasized the importance of starving the rat, of using rat-proof receptacles for food, depriving him of breeding places through the abolition of planked yards and passage-ways, of keeping him out of

buildings by rat-proof construction, and of demanding the passing and enforcing of anti-rat laws.

APPOINTMENT OF DR. SAMUEL T. ORTON.—Dr. Samuel T. Orton, of the University of Pennsylvania Hospital, has been appointed head of the new psychopathic hospital at Iowa City. This institution is being erected at the cost of \$150,000.

RED CROSS RELIEF TRAINS.—Two special army trains carrying emergency supplies and a large detachment of relief workers have been sent to the hurricane stricken districts between Brownsville and Corpus Christi, Texas.

VITAL STATISTICS OF FRANCE.—Vital statistics reports have been suspended in France during the war; but the *Journal officiel* has recently published the following statistics for the years 1915, 1916, and 1917 of twenty-seven departments. These figures do not include the eleven invaded departments, in which the losses caused by the war have been approximately 1,400,000. The report for 1913 is given for comparison:

	BIRTHS	DEATHS
1913	604,811	587,445
1914	594,222	647,549
1915	387,806	655,146
1916	315,087	607,742
1917	343,310	613,148

It is a matter to be gravely considered that while in 1913 the number of births exceeded the number of deaths by 17,366, the deaths in 1917 exceeded the births by 269,838.

GRADUATE MEDICAL EDUCATION IN GREAT BRITAIN.—A plan for developing graduate medical education in Great Britain has been announced in the *Journal of the American Medical Association*. It is hoped that the Government will support the project, which will require graduate teaching for the following classes: (1) Physicians in Great Britain who would like to spend a portion of their holidays in getting up to date in all branches of their work, or who wish to spend a few months in learning all they can about some particular subject in which they desire to specialize, either completely or in conjunction with general practice; (2) medical officers of the Royal Navy,

the Royal Army Corps, the Royal Air Force, and the Indian and Colonial Medical Services, who have to attend postgraduate courses at stated intervals; (3) graduates from British colonies, India and Egypt, including those who have recently qualified and wish to complete their medical education in England, and some senior men who fall into the same category as the men in Class 1; (4) graduates of allied countries, especially Americans, large numbers of whom have in the past studied in Germany and Austria, in many instances simply because they were unable to obtain equal facilities in England, as well as the French, who have hitherto rarely studied abroad, and the Japanese.

MEDICAL SCHOLARSHIP FOR NEGROES.—Six scholarships of twelve hundred dollars each have been offered by Julius Rosenwald of Chicago for negro graduates of American medical schools for post-graduate study in pathology, bacteriology, physiology, pharmacology, or physiologic chemistry. Appointments will be made in 1920 by a committee composed of the following men: Dr. William H. Welch, Johns Hopkins School of Public Health, chairman; Dr. David L. Edsall, dean of the Harvard Medical School, and Dr. Victor C. Vaughan, dean of the medical department of the University of Michigan. Abraham Flexner, secretary of the general education board, will act as secretary of the committee.

CONFERENCE OF WOMEN PHYSICIANS.—A conference of women physicians, attended by representatives from thirty countries, began on September 15 in New York at the headquarters of the Young Women's Christian Association, and will continue for six weeks. The conference is an outgrowth of work conducted during the war by the social morality committee of the Y. W. C. A. war work council, and has been called for the study of social responsibility for public health. Dr. Anna L. Brown is chairman of the program committee.

BOSTON AND MASSACHUSETTS.

WEEK'S DEATH RATE IN BOSTON.—During the week ending September 13, the number of deaths reported was 191 against 219 last year, with a rate of 12.53 against 14.56 last year. There were 35 deaths under one year of age against 34 last year.

The number of cases of principal reportable

diseases were: Diphtheria, 26; scarlet fever, 27; measles, 6; whooping cough, 20; typhoid fever, 6; tuberculosis, 41.

Included in the above were the following cases of non-residents: Diphtheria, 4; scarlet fever, 4; whooping cough, 1; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 2; measles, 1; whooping cough, 2; typhoid fever, 1; tuberculosis, 13.

Included in the above were the following non-residents: Diphtheria, 1; tuberculosis, 1.

Influenza cases, 11; deaths, 2. Last year (corresponding week): Cases, not reportable; deaths, 19.

TUBERCULOSIS IN MASSACHUSETTS.—In a recent *Public Health Report* there is an article discussing the tuberculosis problem in Massachusetts, where there are twenty thousand cases of this disease. The author has emphasized the value of rest in bed out of doors and has outlined the method of treatment which he has used as a basis of treatment in approximately two hundred cases. In many cases he found that six weeks of this treatment enabled a patient to return to work greatly improved. The author has recommended that a State correspondence class be formed by the State Department of Health, so simple is the technique of the bed-rest method. The patient should be admitted upon application, endorsed by a private or dispensary physician, the details of his daily life recorded, and reports made in writing to the director of the class at stated intervals. By this method a large number of patients could be benefited at a minimum expense, the patient could keep in contact with his physician and would be required to be examined at stated intervals, and even if he lived in a remote village, he could receive constant and intelligent supervision.

FÊTE FOR HOSPITAL FUND.—A garden fête was held at the Weston Golf Club on September 10 and 11, for the benefit of the American Memorial Hospital at Rheims. It was given under the auspices of the Weston branch of the American Society for French Wounded.

LECTURES OF DR. THOMAS M. LEGGE.—Dr. Thomas M. Legge, chief medical inspector of factories in Great Britain, will give a course of Lowell Lectures and the Cutter Lectures in

Preventive Medicine for the coming year. These lectures will be given under the auspices of the school of public health of Harvard University, the division of industrial hygiene, and the Massachusetts Institute of Technology. The first lecture will be given on November 18. The following subjects will be included in Dr. Legge's courses of lectures: "Twenty Years' Experience of the Notification of Industrial Disease," "Twelve Years' Experience of Workman's Compensation Act and Industrial Diseases," "Medical Supervision in Factories," "Industrial Poisons and Their Prevention," "Anthrax," "Fumes and Gases," "Industrial Fatigue," "Industry As a Subject for Art," "Manufacture under the Medieval Trade Guilds."

ST. VINCENT'S HOSPITAL.—Work has been begun on a new wing to be added to St. Vincent's Hospital in Worcester. The new ward will be of brick and steel, three stories high, and will be used to house the surgical ward and one hundred private room patients.

SPRINGFIELD ACADEMY OF MEDICINE.—The first meeting of the Springfield Academy of Medicine for the year 1919-1920 was held in Springfield on September 16. Dr. Walter E. Fernald, superintendent of the Massachusetts School for the Feeble Minded, delivered an address on "Our Changing Conceptions as to Those Citizens Who Are Only Partially Responsible."

BETH ISRAEL HOSPITAL SITES.—The Beth Israel Hospital Association has purchased two lots of land containing 8871 square feet and a single dwelling house of nine rooms and an adjoining lot, containing 4293 square feet, in Roxbury. These buildings will be remodelled at once for use as hospital quarters for incurable patients and those suffering from contagious diseases such as the city and state authorities will permit in that locality. The Beth Israel Hospital is the only Jewish hospital in New England and is supported by a Jewish community membership in Greater Boston of five thousand men and six thousand women. Four years ago, the Association purchased four acres of land, upon which were built a hospital and a nurses' home.

DIPHTHERIA.—The *Monthly Bulletin* of the Health Department of Boston has pointed out the fact that for the past four years there has been an average of over two hundred deaths a year from diphtheria in Boston. In spite of the fact that the causes of the diseases are understood, the modes of its transmission known, and means for controlling it available, diphtheria is tending to increase rather than diminish. Investigations have shown that probably sixty-five per cent. of deaths from diphtheria have occurred among children under six years of age, and twenty-three per cent. were ill at least a week before a physician was called. The *Bulletin* emphasizes the necessity of prompt and careful investigation of inflammatory conditions of the nose and throat in children, and urges physicians not to hesitate to take swab cultures from a child with a sore throat and even from all members of the family, although there may be present no clinical symptoms of the disease.

GIFT TO INFANTS' HOSPITAL.—The sum of six thousand dollars has been bequeathed to the permanent fund of the Infants' Hospital, Thomas Morgan Rotch Memorial Building, Boston, by the will of the late Clara Morgan Rotch of New Bedford.

PLYMOUTH COUNTY HOSPITAL.—The Plymouth County Hospital has been completed recently and will care for all cases of tuberculosis in the county which need hospital treatment. The cost of building and equipping this institution was approximately \$275,000.

NEW ENGLAND NOTES

GIFTS TO HOSPITALS.—By the will of the late David E. Murphy of Concord, N. H., the sum of five hundred dollars has been left to the Women's and Children's Memorial Hospital and to the Margaret Pillsbury General Hospital of Concord.

RED CROSS FUNDS.—It has been estimated that the sum of \$15,000,000 will need to be raised throughout the country in order to carry out the work already begun in supplying food, clothing, and medical aid in countries devastated by war and for continuing the health campaign. Of this amount, \$1,330,000 must be raised by New England. In order to strengthen the local chapters there will be a Red Cross roll call from November 2 to 11.

WAR RELIEF FUNDS.—The principal war relief funds of New England have reached the following amounts:

French Orphanage Fund ..	\$512,414.00
Italian War Relief Fund ..	302,429.17
Russian Refugee Fund	92,442.55

The American Fund for French Wounded, New England Branch, has received \$189,815 for the American Memorial Hospital at Rheims.

NEW ENGLAND DENTAL SOCIETY.—The twenty-fifth annual convention of the New England Dental Society was held recently at the Hotel Somerset in Boston, with an attendance of more than one hundred. Lectures and clinic demonstrations were given. Efforts were made by the officers and the executive committee to present a post-graduate course for its members upon the following three subjects: "Oral Surgery and Local Anesthesia," under the direction of Dr. Arthur E. Smith of Chicago, at the Harvard Dental School; "X-Ray Diagnosis and Technique," by Dr. Arthur E. Kinley, at the Forsyth Dental Infirmary; and "Prosthodontia," by Dr. William H. Hoyt, at the Harvard Dental School. Lectures in these three courses were given every day during the convention.

Obituary.

CARL ADDISON ALLEN, M.D.

CARL ADDISON ALLEN, M.D., died at his home in Holyoke September 11, aged 71 years. Dr. Allen was born in Lempster, N. H., October 27, 1847, son of Stephen and Phebe (Lewis) Allen. His preparatory education was gained at Kimball Academy at Meriden, N. H., from which he was graduated in 1871. For a time he was principal of the Marlow (N. H.) academy and took up the study of medicine under the instruction of Dr. Marshall Perkins of that place. He attended a course of lectures in medicine at Bowdoin College, Brunswick, Me., and then entered Long Island College Hospital Medical School, from which he was graduated in 1874 with the degree of doctor of medicine.

For 15 years following his graduation he successfully practiced his profession at Asworth, N. H. While located there he served as super-

intendent of schools for 12 years, was editor of a local newspaper there, and interested in a number of industrial enterprises of that town. He was a member of the New Hampshire Medical Society, of the Massachusetts Medical Society, and of the Connecticut River Medical Society. Fraternally, he was affiliated with Holyoke Lodge of Odd Fellows and was a past grand master of that order. His church affiliations were with the Congregational denomination.

After a temporary breakdown, he abandoned his practice at Asworth and settled in Holyoke in 1890.

Although highly successful as a practicing physician, Dr. Allen was probably best known for his anti-tuberculosis work, fighting the ravages of the "white plague," the dread disease that ultimately claimed him. It was in 1906 that the Holyoke Society for the Prevention and Relief of Tuberculosis was organized, and Dr. Allen was made its first president. His interest in the welfare and success of this organization never ceased. In 1907 the work of the organization had grown to such proportions that it was a public movement, and the municipal sanatorium was dedicated in 1912. From the time he was first elected president of the local organization, February 22, 1903, he served in that office for ten consecutive years. His connection with the anti-tuberculosis movement extended beyond local confines and he was affiliated with the Massachusetts State Tuberculosis Association and the National Association for the Study and Prevention of Tuberculosis. Activities of the local organization began with the establishment of a day camp, but soon extended, through state enactment, to the establishment of a municipal tuberculosis hospital.

He was twice married. His first wife, married in 1875, was Sophie E. Stearns of Lebanon, N. H. Four children were born to this union: Walter S., now connected with the research department of the General Chemical Company of New York City; Dr. Fred H. Allen, who was associated with his father in the practice of medicine; Raymond P., paymaster at the Farr Alpacas Company's plant, and Sophie E., now engaged in secretarial work at Columbia University. His second wife was Hattie M. Murdough, of Asworth, N. H., married in 1891. Two children were born to this union, Cary M., who is with the General Chemical Company of New York, and Leland C., with the General Chemical Company of Holyoke.

Miscellany.

RED CROSS BASIC SPLINT.

Arm and leg wounds composed a large majority of the injuries received in battle, hence there was an enormous demand for splints—a



THE NEW ADJUSTABLE ABDUCTION ARM SPLINT FOR USE IN BASE HOSPITALS IN ARM FRACTURES, FOR THE PERFECTION OF WHICH THE AMERICAN RED CROSS SPLINT DEPARTMENT WAS LARGELY RESPONSIBLE. THE ADVANTAGES OF THIS SPLINT ARE THAT IT CAN BE USED ON EITHER ARM AND CAN BE ADJUSTED TO ANY POSITION.

framework upon which the injured member may rest in the most comfortable position.

Contrary to the layman's preconceived opinion of a splint, it is not a piece of wood, but, for the use of the American Army, was of steel framework with leather and felt padding; and most of them were of ingenious invention, being far from simple affairs. The types were almost as numerous as the injuries for which they were made to aid in healing.

The American Red Cross took over the job of supplying all splints to the American Expeditionary Forces, and in the vernacular of the streets, it was "some job."

Most of the leg and arm splints were made of steel rods bent in the shape of a U about four feet in length. They taper from the bottom up to the top, where a semi-circular steel rod, attached to each end of the U by a hinge, is padded well and attached. Upon the padded part rests the thigh or shoulder of the injured member. The wounded or broken leg or arm is bandaged between the two sides of the U. The bottom of the U is dented in order that a bandage may be attached to the bottom of the splint and the injured member for the purpose of pulling or applying the necessary weight to force the broken bones or torn muscles into place. It also serves to attach the splint to the foot of a bed or the front of an ambulance so that the wounded leg or arm may be elevated to any position which will give the greatest comfort to the sufferer.

There were numerous variations of this basic splint. Some have a hinge in the center of both sides of the U, so that the injured leg or arm may be bent at the knee or elbow and bound into position. Some have a hand rest at the end, by which the hand may be bandaged into an immovable position, so that injured muscles will not be moved by an unconscious effort. Then there is the U splint with an unmovable padded steel circle at the top, which fits close to the leg or shoulder crech. A splint of this type is also made with hinges so that the arm or leg, stretched straight and fast, may be moved at the thigh or shoulder. There were small wire splints for the foot, the hand, and the wrist.

All splints were made by hand in a Red Cross factory equipped especially for the job and this was only one of the many activities from which the American Red Cross relieved the Army.

W. D. H.

Correspondence.

A PLEA FOR SCOUTMASTERS.

Mr. Editor:—

The following letter from Mr. Guy Waring explains itself. Doubtless there are many physicians who have men under their care who would make good scoutmasters and at the same time would be benefited by the occupation.

WALTER L. BURRAGE.

Boston, Sept. 19, 1919.

Dear Sir:—

The Boy Scouts of America are sorely in need of more scoutleaders for troops for Boston proper, Charlestown, and East Boston, and desire your aid in recruiting them.

It is taken for granted that the Boy Scout Movement needs no explanation to you and that you admire the work so far done. The membership must be increased tenfold before all the boys entitled to the benefits of Scouting can be enrolled. In order to make any further progress there must be more scoutleaders and they are not easy to obtain.

To facilitate this recruiting a School for Scoutleaders will be opened at the Lincoln House, 80 Emerald Street, Boston. The instruction, which is most interesting, will be given from 8 to 9.30 P.M. every Tuesday and Thursday evening from October 21 to November 20, inclusive. No expenses are attached to the course of instruction. It is hoped that you will give your most earnest attention to this matter. Good scoutmasters are almost the whole foundation of the success of Scouting and it is plain that no greater work can be done for our country than to lead up the many unguided boys of the nation through the Boy Scout plan of training. It means making good citizens even out of the foreign born.

Think hard about this, and do not let yourself forget it until you have obtained recruits.

Applicants for the school will communicate with Mr. Edward S. Roche, Scout Executive, Room 1101, 453 Washington Street, Boston.

Respectfully yours, GUY WARING,
Scoutmasters Recruiting Committee.

NOTICES.

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—A meeting for medical improvement will be held at the United States Hotel, Boston, Thursday, Oct. 2, 1919, at 11.30 A.M. The reader will be L. R. G. Crandon, Lieut.-Commander, U.S.N.R., on the subject: Report of a Reservist in the U. S. Navy (for Dr. K. H. Granger, South Weymouth).

DR. C. A. SULLIVAN, Secretary,
South Braintree.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—The semi-annual meeting will be held at the Massachusetts School for the Feeble Minded at Waverley, on Wednesday, October 8, 1919, at 12 o'clock, noon. Business: Report of the Committee on the Disposal of the War Relief Fund.

Lunch will be served at 1 P.M.

After lunch, Dr. Fernald will give a clinical talk and demonstration of cases and the methods of training the children. Opportunity will be given to inspect the institution.

Members intending to be present will kindly notify Dr. Walter E. Fernald, Waverley, Mass., by postal.

LYMAN S. HAPGOOD, Secretary.

RECENT DEATHS.

DR. GEORGE EDWARD RICHARDS died at Boston, September 8, aged 73 years. He was a native of Boston, a graduate of Harvard College (1877) and of the Harvard Medical School (1882). At one time he was district physician to the Boston Dispensary. He joined the Massachusetts Medical Society in 1888 and was retired in 1911.